Rocky Flats Environmental Technology Site

PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 778

REVISION 0

November 15, 2004

Classification Review not required per Exemption number CEX-005-02

1/86

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PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 778

REVISION 0

November 15, 2004

Prepared by: Jerry Mutter for Gordon Madison **Date:** 11/30/04
Gordon Madison, Radiological Engineer

Reviewed by: [signature] **Date:** 11/30/04
Terry Vaughn, Radiological Safety Manager

Approved by: David C. DelVecchio **Date:** 11/30/04
David Delvecchio, 707/776 Project Manager

2

TABLE OF CONTENTS

ATTACHMENTS

ABBREVIATIONS/ACRONYMS

Be	Beryllium
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CDPHE	Colorado Department of Public Health and the Environment
$DCGL_{EMC}$	Derived Concentration Guideline Level – elevated measurement comparison
$DCGL_W$	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DOP	Decommissioning Operations Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
LBP	Lead-based paint
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
N/A	Not Applicable
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
PDSP	Pre-demolition survey plan
PDSR	Pre-demolition survey report
RCRA	Resource Conservation and Recovery Act
RFETS	Rocky Flats Environmental Technology Site
RLCR	Reconnaissance Level Characterization Report
RSA	Removable Surface Activity
RSP	Radiological Safety Practices
TSA	Total surface activity
TSCA	Toxic Substances Control Act
V&V	Verification and Validation
VOCs	Volatile organic compounds
WEMS	Waste and Environmental Management System

4

EXECUTIVE SUMMARY

In order to keep the Pre Demolition Survey Reports (PDSR) a manageable size, and simplify the review process, multiple PDSRs will be issued for B707. The expected issuance of reports through the duration of the final survey process will be as follows:

Report #1 - The main building - 2nd floor, 2nd floor annex and the entire exterior of B707

Report #2 - B707, 1st floor (including the office and dock areas and modules A -K)

Report #3 - B778 (Excluding the laundry, plenum room and west breezeway floor between the B776 office areas and B778. These floor surfaces were impacted by the 1969 B776 fire, and will be demolished as part of the B776/777 demolition)

Report #1 has been completed and approved by DOE and the CDPHE.

Report #2 has been completed approved by DOE and the CDPHE.

Report #3 covers the Pre-Demolition Survey performed to define the final radiological and chemical condition of B778 in accordance with decommissioning objectives. This building was surveyed and will be released under this PDSR. Because B778 is classified as a type 2 structure and will be demolished, the characterization was performed on the building surfaces in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Environmental media beneath and surrounding this structure is not within the scope of this PDS and will be addressed by Environmental Restoration.

Upon approval of **Report #3**, by DOE and concurrence by CDPHE, the uncontaminated portions of B778 may be demolished.

The PDS encompassed both chemical and radiological characterization. The characterization was based on physical, chemical and radiological hazards identified in the facility-specific *Building 707 Closure Project Decommissioning Operations Plan and the associated Reconnaissance Level Characterization Report.*

The areas listed in Table 1 failed to meet the unrestricted release criteria, and will be remediated as radioactive material after the removal of the portions of the building that meet the unrestricted release criteria. If surface contamination exceeds the unrestricted release limits, if possible, the locations will be covered with metal plate to prevent cross-contamination of building debris.

Based upon the results of this PDSR, B778, with the exception of the locations in Table 1, meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan. With CDPHE concurrence, and DOE approval, B778, with the exception of the areas listed in Table 1, will be demolished and managed as sanitary waste. To ensure that the facility remains below the release levels and PDS data remain valid, Level 2 isolation controls have been established and posted accordingly.

5

1 INTRODUCTION

A pre-demolition survey was performed to define the final radiological and chemical condition of this portion of the facility. Building 778 was categorized as a Type 2 facility based on the reconnaissance level characterization surveys performed. Because this structure will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). With the exception of the portions of the building delineated in Table 1, the results of this survey demonstrate B778 meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan prior to demolition. Environmental media beneath and surrounding this area was not within the scope of this PDS and will be addressed by Environmental Restoration.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Building 778 no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before this structure can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied. This document presents the PDS results of B778. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP).

1.1 Purpose

The purpose of this report is to communicate and document the results of this portion of the B778 PDS effort. A PDS is performed prior to building demolition to define the pre-demolition radiological and chemical conditions of a facility. The pre-demolition conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the pre-demolition radiological and chemical conditions of B778. Environmental media beneath and surrounding the facility are not within the scope of this PDSR and will be addressed by Environmental Restoration.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this PDS were the same DQOs identified in the Section 2.0 of the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

2 HISTORICAL SITE ASSESSMENT

A facility-specific Hazards Characterization Report was conducted to understand the facility history and related hazards. This report, *The Building 707 Closure Project Decommissioning Operations Plan (DOP)* and the *associated Reconnaissance Level Characterization Report (RLCR)*, Revision 0) focused on the more highly contaminated sections of the B707 cluster. Reconnaissance level characterization surveys were performed on this structure.

6

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

B778 was characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces.

Measurements were performed to evaluate the contaminants of concern (weapons-grade plutonium isotopes). Based upon historical and process knowledge, in-process survey data, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan in the form of four (4) survey packages was developed during the planning phase that describes the minimum survey requirements (refer to table 2 for the applicable survey units).

With the exception of those areas listed in Table 1, all contaminated components have been removed from B778.

The areas listed in the following table failed to meet the unrestricted release criteria, and will be remediated as radioactive material after the removal of the portions of the building that meet the unrestricted release criteria. If surface contamination exceeds the unrestricted release limits, the locations will be covered with metal plate to prevent cross-contamination of building debris during demolition. Please see Plated Contamination Area Map in Attachment A.

Table 1

Contaminated Material Remaining in the Building

Location	Description	Total Surface contamination (Yes/No)	Plate Required (Yes/No)	Grouted? (Yes/No)
Room 100 Laundry	Laundry Pit to 732-plated	Yes	Yes	No
Room 100 Laundry	Pit to Valve Vault 9 Pit-plated	Yes	Yes	No
Room 100 Laundry	Recessed floor area where scale was used	Yes	Yes	No
Room 100 Laundry	Floor-remains part of survey unit 776007- package generated to encapsulate	No	No	No
Room 100 Laundry	Process line trench	Yes	No	Yes
Room 104A Laundry Plenum	Floor-remains part of survey unit 776007- package generated to encapsulate	No	No	No
Room 104A Laundry Plenum	Plenum Drain pit-plated	Yes	Yes	No
776 Breezeway	Breezeway floor between 776 and 778-remains part of unit 776007- package generated to encapsulate	No	No	No
777 Passageway	Chainveyor passageway between 777 and 778-remains part of unit 776014 (Area VI)	No	No	No

The building was divided into four survey units, based on the similarities for the potential for contamination, and geographical boundaries. If deemed necessary, reclassification of areas was performed based on the extent of contamination discovered. The following survey breakdown structure delineates all of the applicable survey units for B778.

7

Table 2

Survey Breakdown Structure

Survey Unit	MARSSIM Class	Survey Unit Description	# of Measurements
707006	3	B778 shop, locker rooms and office areas	39
707007	2	B778 Laundry Room - 100 and Plenum area-Walls and Ceiling only- Note 1	15
707301	2	707/778 Corridor	15
707304	3	The exterior of B778	15

Note 1 – The B778 Room 100 Laundry, Room 104A Laundry Plenum, 777 Passageway and the 776 Breezeway areas contain areas/pits that will be plated or encapsulated prior to building demolition. The floor surfaces have been scanned and verified to be < the 300 dpm/100 cm^2, but will be handled as radioactive material during building demolition of B776. The floors and pits of these areas will be reported separately as part of the B776 Area Survey package.

In addition to the TSAs and RSAs, scans were performed at the following survey density:

No Class 1 Survey Units were identified for B778.

Class 2 Survey Units

- A 100% scan of accessible surfaces of the floors was performed.
- A minimum of a 25% scan was performed on lower wall surfaces (2 meters and below).
- A minimum of a 10% scan was performed on wall and ceiling surfaces as well as adjacent equipment in the overhead. Scans biased on all horizontal surfaces.

Class 3 Survey Unit for the machine shop, locker rooms, and administrative area

- A 50% scan of accessible surfaces of the floors was performed.
- A minimum of a 25% scan was performed on lower wall surfaces (2 meters and below).
- A minimum of a 5% scan was performed on upper wall and ceiling surfaces as well as adjacent equipment in the overhead.

Class 3 Survey Unit for the exterior of the building

- A minimum of a 5% scan was performed on wall and roof surfaces.

Based on hazards characterization data and historical and process knowledge, as documented in Technical Basis Document 00168 *"Building 707/778 Technical Justification For Types of Radiological Surveys Performed"*, even though uranium contamination exisits in the laundry room area, transuranic isotopes are the primary contaminants of concern in the Building 707 Cluster. Therefore, the PDS was performed to the transuranic PDS unrestricted release criteria. Individual radiological survey unit packages are maintained in the Building 707/776/777 Characterization Project files.

The survey unit packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure.* Total surface activity (TSA), removable surface activity (RSA), media samples, and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures.* Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis.* Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control.* Radiological survey

data, statistical analysis results, survey locations, scan data and radiological scan maps are presented in Attachments B1 through B4, *Radiological Data Summary and Survey Maps.* Data from all survey units was evaluated after TSA/RSA data collection to ensure they would pass the MARSSIM sign test (This includes survey units with elevated or missing survey data).

For a majority of the lower wall and floor scan surveys, the Bartlett Final Survey Monitor (FSM) was used. This instrument has the capability of detecting localized alpha contamination (hot spots) above 300 dpm/100 cm^2. In addition, the associated software has the ability to provide square meter averages of alpha contamination. This instrument has an alarm function and visual display for values that exceed the transuranic $DCGL_{emc}$ of 300 dpm/100 cm^2 as well as the transuranic $DCGL_w$ of 100 dpm/100 cm^2.

Survey Unit 707006

This survey unit is comprised of the floor, walls and ceiling in the machine shop, locker rooms, and office areas - Rooms 102 through 144 in B778. It is classified as a Class 3 survey unit. The classification was based on the minimal potential for contamination due to process history. A total of 39 random TSA and RSA measurements were collected in this the survey unit. Class 3 surface scan surveys of the accessible floor, wall, and ceiling surfaces were also performed at the scan frequencies specified on Page 7.

All random TSA and RSA survey results in survey unit 707006 were less than the applicable PDS transuranic DCGL values. During the scanning process, contamination > $DCGL_{emc}$ was detected on twenty-seven spots of contamination on the floor surfaces. These areas were investigated, and/or remediated to <300 dpm/100 cm^2. Extensive scan surveys were performed in all adjacent areas to ensure the contamination was bounded, and provide justification for not up-grading the classification. Out of the 2563 M^2 total floor surface area for the survey unit, 84 percent (2166 M^2) was scanned with biased scanning performed in high traffic areas such as building entry and exit routes, hallways, locker and storage rooms. The entire survey unit met the acceptance criteria of 100 dpm/100 cm^2 for the $DCGL_w$ as well as 300 dpm/100 cm^2 for the $DCGL_{emc}$.after remediation. See Attachment B1 for radiological survey data, investigation documentation, statistical analysis results, survey locations, and radiological scan maps for survey unit 707006.

Survey Unit 707007

This survey unit is comprised of the walls and ceilings in Rooms 100 and 104A (778 Laundry and Laundry Plenum) in the west side of B778. It is classified as a Class 2 survey unit. The classification was based on the minimal potential for contamination due to process history. A total of 15 random TSA and RSA measurements were collected for the survey unit. Class 2 surface scan surveys of the accessible floor, wall, and ceiling surfaces were also performed at the scan frequencies specified on Page 7.

All random TSA and RSA survey results in survey unit 707007 were less than the applicable PDS transuranic DCGL values. During the scanning process, contamination > $DCGL_{emc}$ was detected on two spots on a wall in this survey unit. This area was investigated and remediated. Also during the scanning process, numerous spots of contamination were discovered on the floors. These areas were investigated, and/or remediated to <300 dpm/100 cm^2. The entire survey unit met the acceptance criteria of 100 dpm/100 cm^2 for the $DCGL_w$ as well as 300 dpm/100 cm^2 for the $DCGL_{emc}$. The floors for this unit were scanned via the Bartlett floor monitor but scan results were outside the scope of this survey unit, since the floors will be included with the B776 demolition plan. See Attachment B2 for radiological survey data, investigation documentation, statistical analysis results, survey locations, and radiological scan maps for survey unit 707007.

Survey Unit 707301

This survey unit is comprised of the floor, walls, and ceiling of the B707-B778 Corridor. It is classified as a Class 2 survey unit. The classification was based on minimal potential for contamination due to process history. A total of 15 random TSA and RSA measurements were collected for the survey unit. The floor was shaved as part of the remediation process prior to surveying. Class 2 surface scans of the accessible floor surfaces were also performed at the scan frequencies specified on Page 7. All random TSA and RSA survey results in survey unit 707301 were less than the applicable PDS transuranic DCGL values. During the scanning process, all values were verified to be <300 dpm/100 cm^2. No investigations were required in this survey unit. The entire survey unit met the acceptance criteria of 100 dpm/100 cm^2 for the $DCGL_w$ as well as 300 dpm/100 cm^2 for the $DCGL_{emc}$. See Attachment B3 for radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 707301.

Survey Unit 707304

This survey unit is comprised of the exterior surfaces of B778. It is classified as a Class 3 survey unit. The classification was based on the minimal potential for contamination due to process history. A total of 15 random TSA and RSA measurements were collected for the survey unit. Class 2 surface scans of the accessible exterior surfaces of this survey unit were also performed at the scan frequencies specified on Page 7.

All random TSA and RSA survey results in survey unit 707304 were less than the applicable PDS transuranic DCGL values. All scanned surfaces were <300 dpm/100 cm^2. No investigations were required in this survey unit. The entire survey unit met the acceptance criteria of 100 dpm/100 cm^2 for the $DCGL_w$ as well as 300 dpm/100 cm^2 for the $DCGL_{emc}$. See Attachment B4 for radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 707304.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

4.1 Asbestos

No asbestos-containing materials are present in these areas. Asbestos abatement was successfully completed in accordance with CAQCC Regulation No. 8, as certified in the Demolition Notification submitted to CDPHE.

4.2 Beryllium (Be)

All beryllium samples obtained below were obtained in accordance with the site PDSP.

Rooms 100, 102D and 104A in the west end of building 778 were listed on the Historical List of Rooms with potential beryllium contamination. The historical records indicate that the potential beryllium contamination source was contaminated equipment only. No external beryllium contamination was ever detected in the west end of B778. The contaminated equipment was removed prior to conducting final status surveys. The rooms were never posted as a Beryllium Regulated or Controlled Area. The plenum (104A) and associated ducts were sampled for removable beryllium and all samples were below the analytical reporting limit of 0.1 ug/100 cm^2.

The final beryllium surveys for this area were collected on September 19, 2004. All samples collected were below the analytical reporting limit of 0.1 ug/100 cm^2. Samples were collected on horizontal surfaces from floor to ceiling. Since no removable beryllium was detected, no further sampling is required.

The Rooms in the east end of B778 were never listed on the Historical List of Rooms with potential beryllium contamination. The baseline and subsequent routine surveys have all been below the analytical reporting limit of 0.1 ug/100 cm^2. The rooms were never posted as a Beryllium Regulated or Controlled Area. The final beryllium surveys for this area were collected on September 19, 2004. All samples were below the reporting limit of 0.1ug/100 cm^2. Samples were collected on horizontal surfaces from floor to ceiling. Since no removable beryllium was detected, no further sampling is required. PDS beryllium laboratory sample data and location maps are contained in Attachment C, *Chemical Data Summaries and Sample Maps.*

4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based on a review of WEMS, Building 778 historically contained several Resource Conservation and Recovery Act (RCRA) 90-day storage units, satellite storage areas, and universal waste storage areas. All were appropriately closed, and no evidence of releases from these units was observed. Based on a review of WEMS and the RCRA Master List of Units at RFETS, there were no RCRA permitted container storage units or permitted tanks in Building 778. However, ancillary piping from permitted tanks and mixed residue tanks in Buildings 776/777 and 707 passed through Building 778. These units have been closed in accordance with the DOPs for Buildings 776/777 and 707. There were also several CERCLA remediation waste storage areas in Building 778, which have been appropriately closed.

A visual inspection of Building 778 by 707 Environmental Compliance personnel verified that hazardous wastes and chemicals have been removed, including gas cylinders, batteries, light bulbs and fluorescent tubes, mercury switches, poured lead piping joints, and chemicals that were previously stored in the building.

No sampling has been conducted for lead in paint in B778. However, Environmental Waste Compliance Guidance #27, *Lead-Based Paint (LBP) and LBP Debris Disposal,* states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) waste and need not be sampled unless the potentially lead-containing component is to be scabbled or otherwise comprise a separate waste stream.

As a result of these observations it has been determined that no further sampling for RCRA/CERCLA constituents is required. All building demolition debris can be compliantly disposed as non-hazardous sanitary or low-level waste.

4.4 Polychlorinated Biphenyls (PCBs)

Building 778 has been used to store PCB wastes. All PCB wastes and waste containers have been removed from the facility, including light ballasts and capacitors. No sampling has been conducted for PCBs in paint in B778. However, Environmental Waste Compliance Guidance #25, *Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition*, states that applied dried paints are acceptable for disposal (with notification) in a non-hazardous solid waste landfill as PCB bulk product waste and need not be sampled.

11

4.5 Freon

Various equipment in Building 778 contained freon, such as air conditioners, refrigerators, and water fountains. The freon was drained from the equipment by Colorado licensed refrigeration technicians.

4.6 Physical hazards

Physical hazards associated with B778 consist of those common to standard industrial environments, and include hazards associated with energized systems, utilities, and trips and falls. There are no other unique hazards associated with the facility. The facility has been relatively well maintained and is in good physical condition, and therefore, does not present hazards associated with building deterioration.

Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices. A structural engineer will evaluate the structure prior to demolition as required by the B707 DOP, to assess any structural issues associated with the proposed demolition methods and sequence.

5 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of B778 and consequent waste management is of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments B1 through B4) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original project DQOs. DQAs for radiological surveys and beryllium analyses are included in this report. The facility has been verified to be free of asbestos, PCBs, and RCRA/CERCLA materials through in-process characterization and final facility walkdowns, and no further sampling for these chemical constituents was required.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- the *number* of samples and surveys;
- the *types* of samples and surveys;
- the sampling/survey process as implemented "in the field"; and
- the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are presented in Attachment D. The DQA Checklists are provided in the individual survey unit packages (located in the Building 707 Characterization Files).

The Minimum Detectable Activity (MDA) for each PDS instrument was determined *a priori* based on typical parameters (background, efficiency, and count time). A list of radiological field instrumentation and associated sensitivities is presented in Table 3.

Table 3
PDS Radiological Field Instrumentation
& Minimum Detectable Activities

Model	Measurement Type	MDA (dpm/100 cm^2)
NE Electra DP6	TSA	48
NE Electra AP6	Scan	300
Eberline SAC-4	Removable (Smears)	10
Bartlett FSM	Scan	300

6. DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of B778 will generate a variety of wastes. All waste identified previously can be disposed of as sanitary waste.

7. FACILITY CLASSIFICATION AND CONCLUSIONS

Based upon the results of this PDSR, with the exception of those areas specified in Table 1, B778 meets the unrestricted release limits specified in the site Pre-Demolition Survey Planand is ready for demolition. The PDS B778 was performed in accordance with the DDCP and PDSP. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. Environmental media beneath and surrounding the facilities and the components and areas presented in Table 1 of this PDSP will be addressed at a future date.

A facility walkdown and historical review indicates that hazardous wastes, asbestos, and CFCs have been removed from the facility, and the remaining structure may be compliantly disposed as non-hazardous sanitary or low-level waste, depending on the radiological conditions. All RCRA units will be closed in accordance with the Building 707 DOP prior to demolition.

With the exception of those components and areas presented in Table 1 of this PDSP, radiological contamination in excess of the PDSP Table 7-1 limits does not exist in B778.

Based upon this PDSR, B778 is acceptable to demolish, and the debris managed as sanitary waste. Contaminated flooring in the laundry room and plenum areas, under-slab utilities, plated surfaces and piping systems shall be managed as radioactive waste, unless additional data collected prior to waste disposition proves otherwise. To ensure that the facility remainsbelow the release levels and that PDS data remain valid, Level 2 isolation controls have been established, and the area posted accordingly.

8. REFERENCES

Building 707 Closure Project Decommissioning Operations Plan, Revision 0, December 21, 2000

Building 707 Reconnaissance Level Characterization Report, August 1, 2000

DOE Order 5400.5, *Radiation Protection of the Public and the Environment*

DOE Order 414.1A, *Quality Assurance*

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 4, July 15, 2002.

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.

MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual* (NUREG-1575, EPA 402-R-97-016).

PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev. 1, May 22, 2001.

PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 2, March 10, 2003.

PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.

PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-563-ACPR, *Asbestos Characterization Procedure*, Revision 0, August 24, 1999.

PRO-536-BCPR, *Beryllium Characterization Procedure*, Revision 0, August 24, 1999.

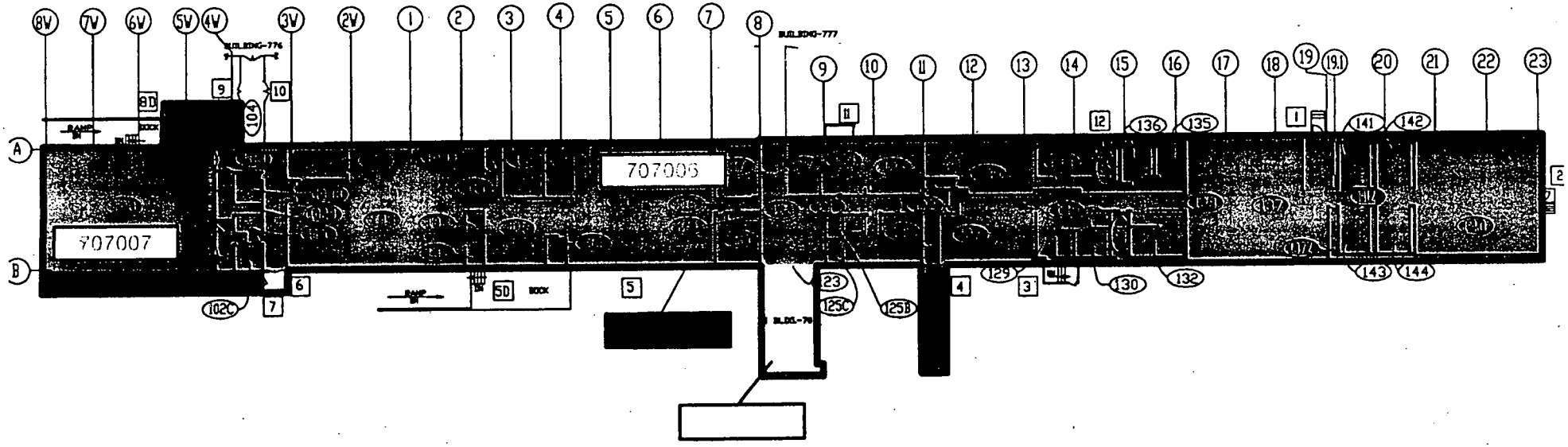
RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition, April 5, 1999.

RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and LBP Debris Disposal, November 4, 2002

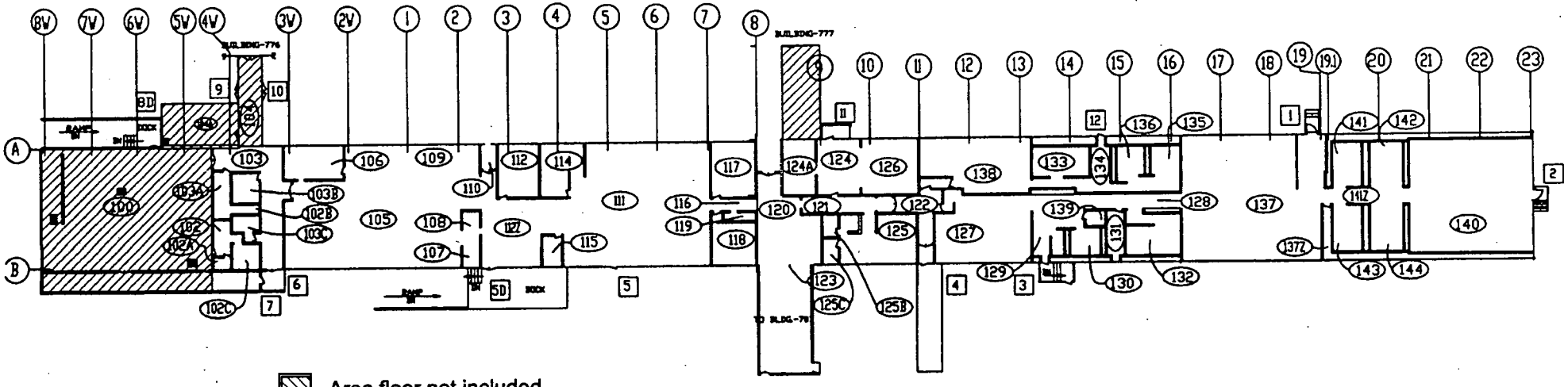
Attachment A

B 778 Building Overview Map and
B 778 Areas Not Included in Survey Unit Overview Map

BLDG. 778 Survey Unit Overview



BLDG. 778 Excluded Locations



Attachment B-1

Survey Unit 707006 Survey Data and Maps

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

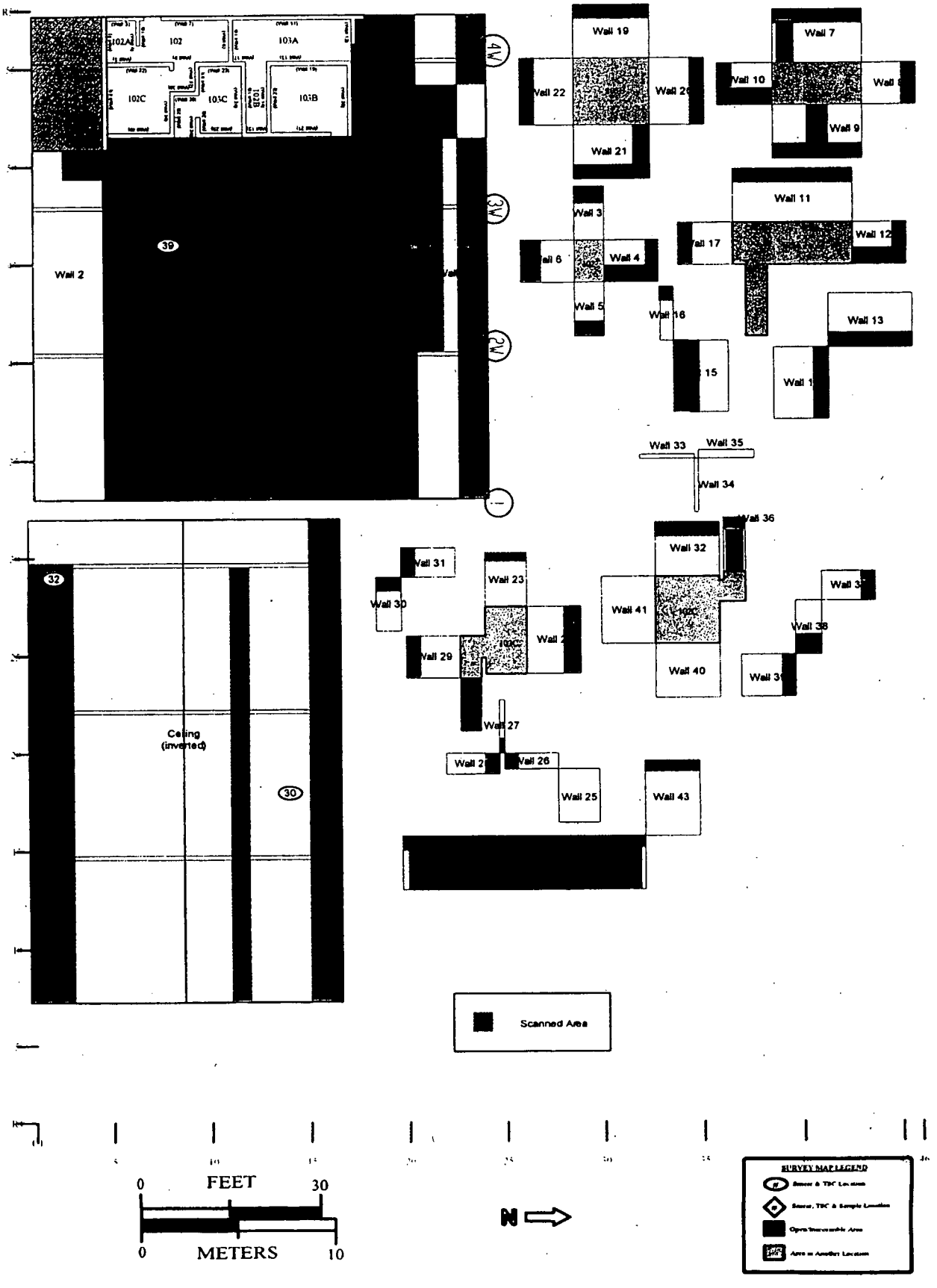
Survey Area: A Survey Unit: 707006 Classification: 3

Building: 778

Survey Unit Description: Building 778 interior

Total Floor Area: 2563 sq. m Total Area: 8914 sq. m Random Start Grid Size: N/A

SURVEY UNIT 707006 - MAP 1 OF 7



19

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A Survey Unit: 707006 Classification: 3

Building: 778

Survey Unit Description: Building 778 interior

Total Floor Area: 2563 sq. m Total Area: 8914 sq. m Random Start Grid Size: N/A

SURVEY UNIT 707006 - MAP 2 OF 7

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

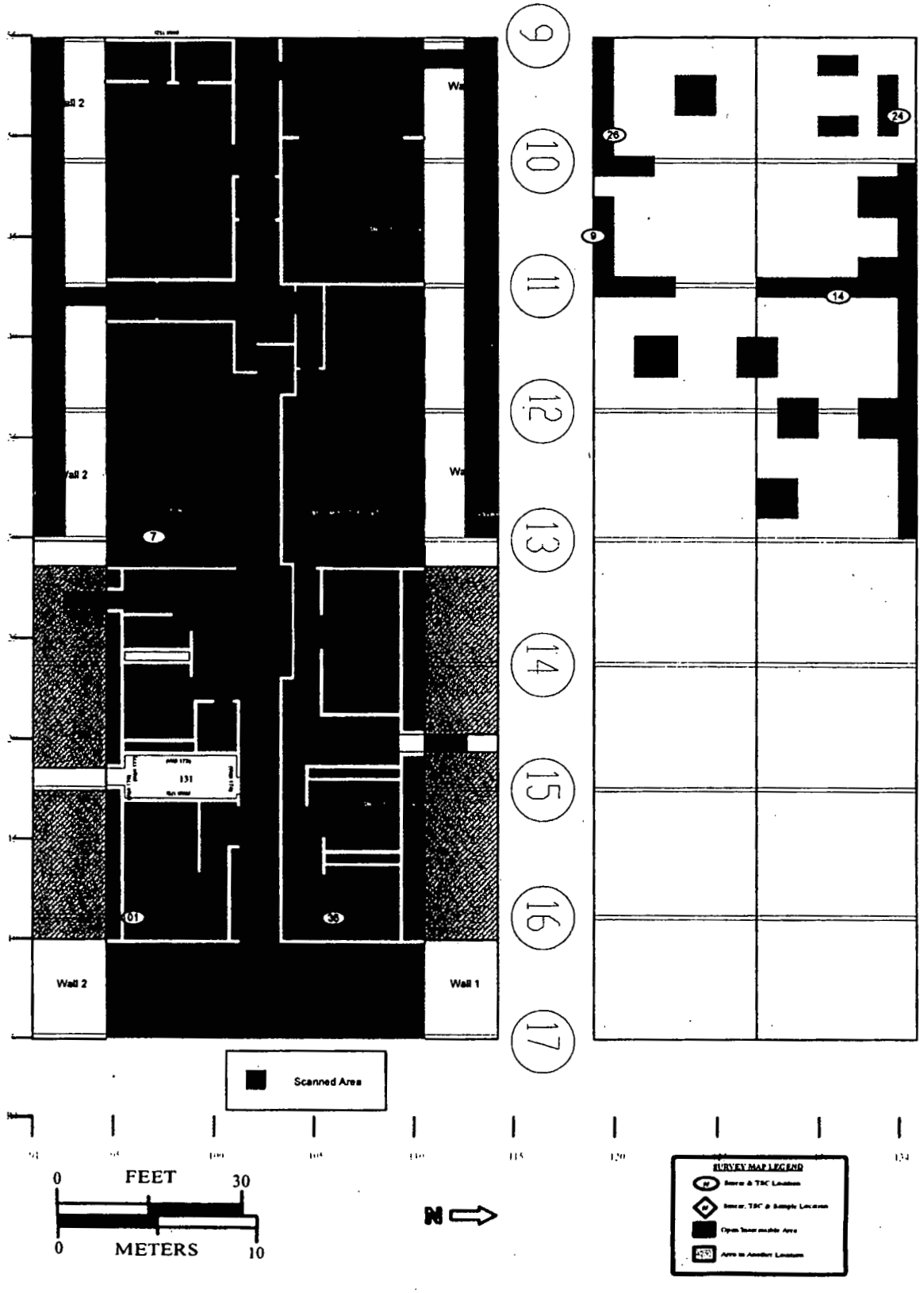
Survey Area: A Survey Unit: 707006 Classification: 3

Building: 778

Survey Unit Description: Building 778 Interior

Total Floor Area: 2563 sq. m Total Area: 8914 sq. m Random Start Grid Size: N/A

SURVEY UNIT 707006 - MAP 3 OF 7



RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

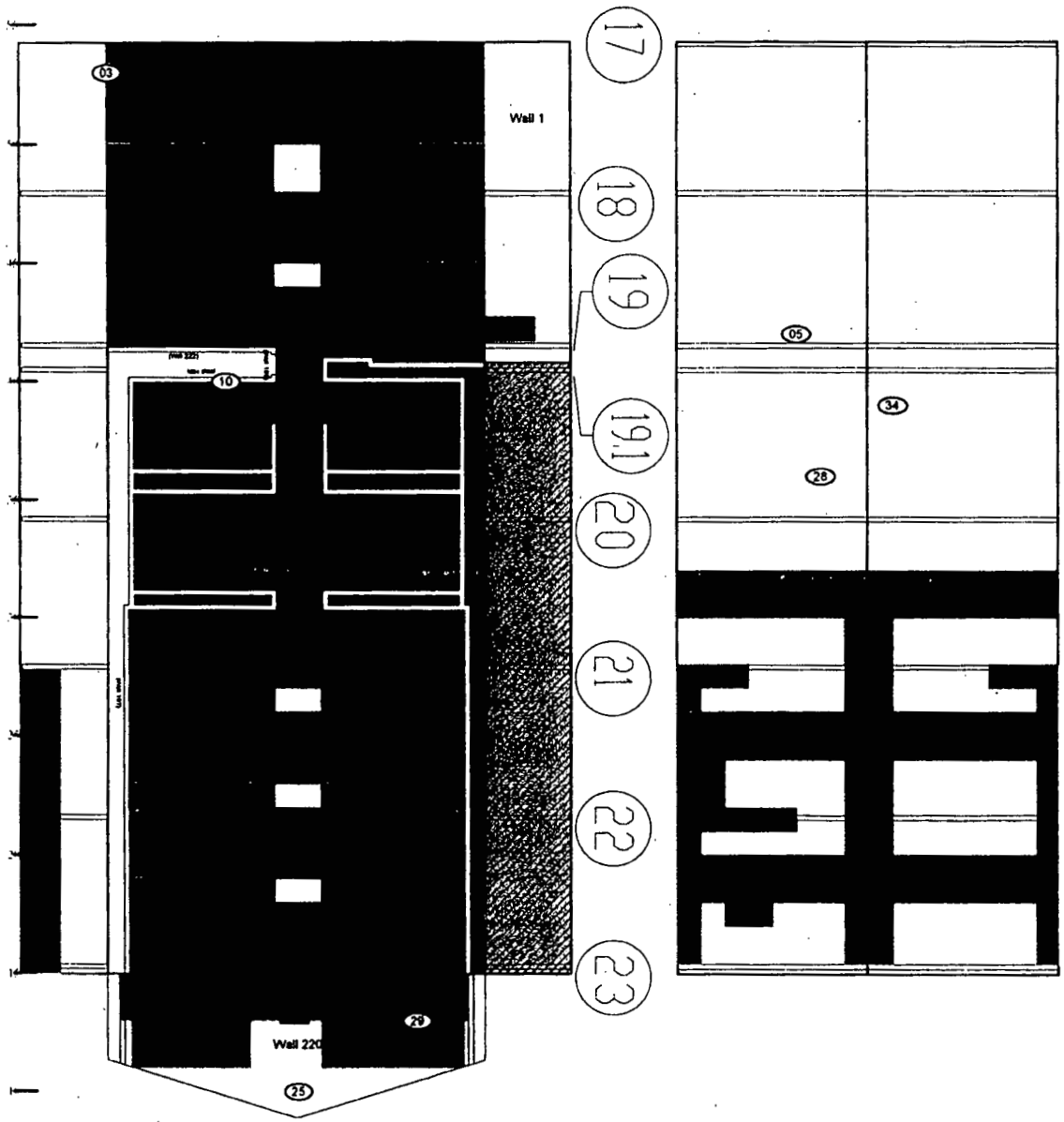
Survey Area: A **Survey Unit: 707006** **Classification: 3**

Building: 778

Survey Unit Description: Building 778 interior

Total Floor Area: 2563 sq. m **Total Area: 8914 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 707006 - MAP 4 OF 7



RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

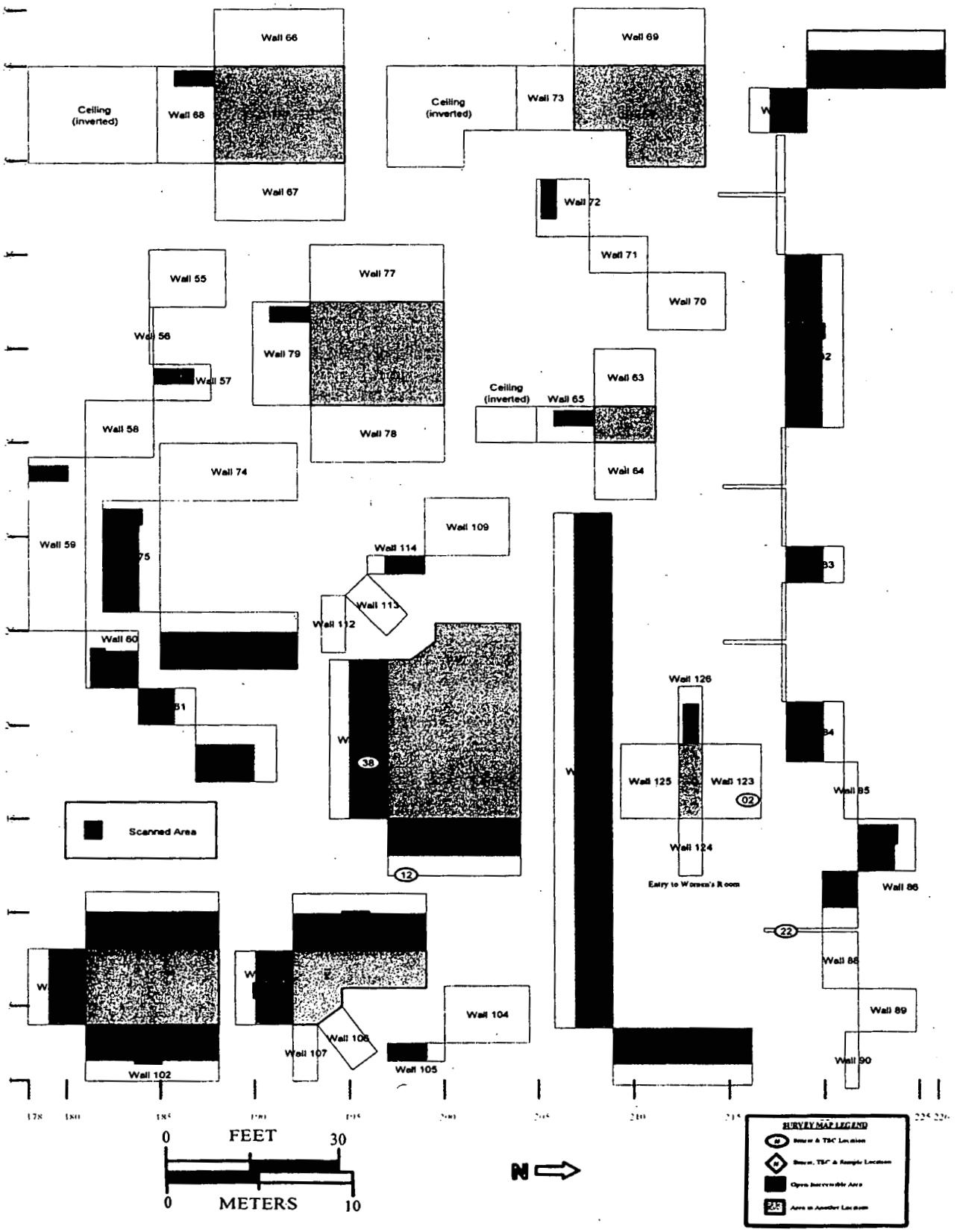
Survey Area: A **Survey Unit: 707006** **Classification: 3**

Building: 778

Survey Unit Description: Building 778 Interior

Total Floor Area: 2563 sq. m **Total Area: 8914 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 707006 - MAP 5 OF 7



23

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

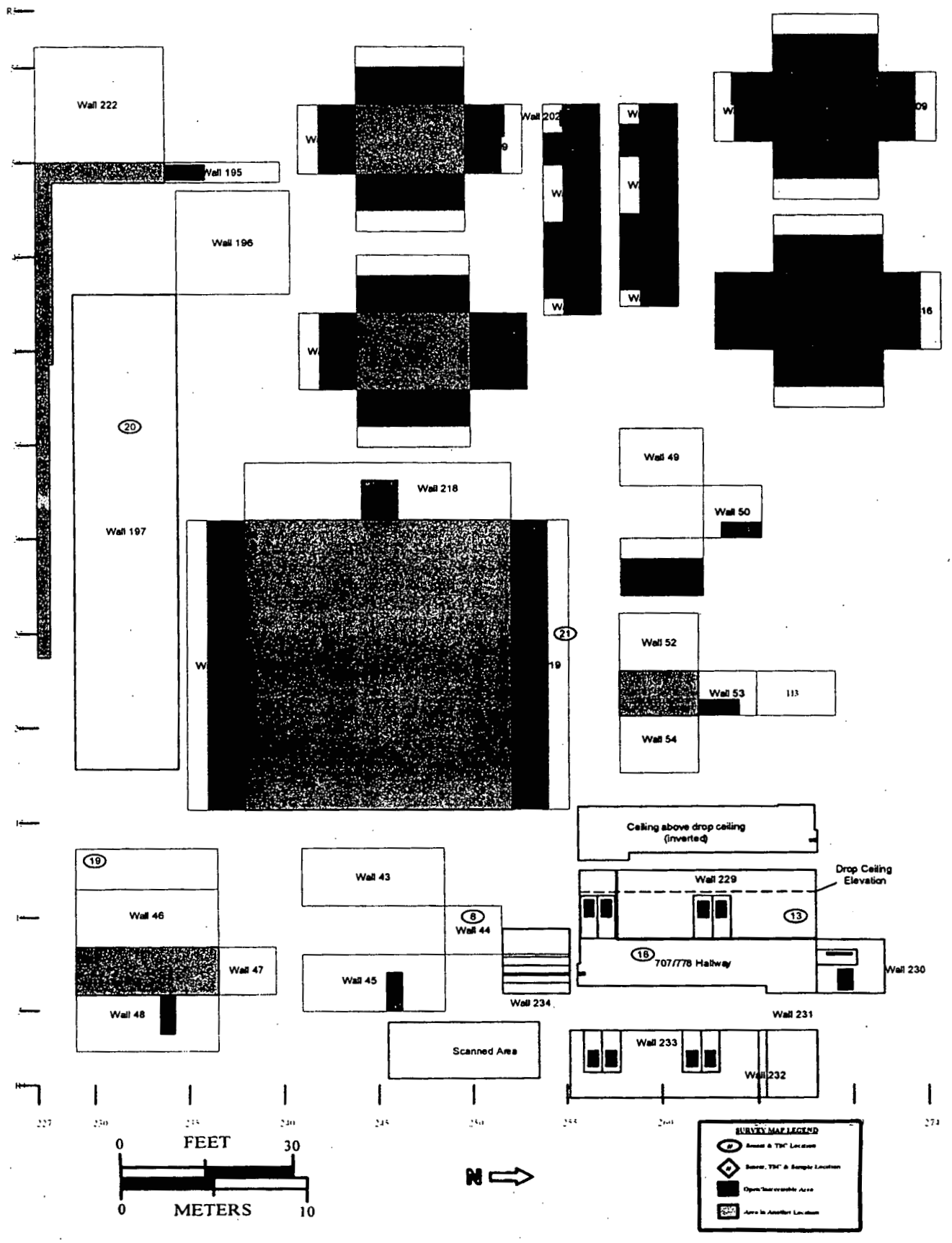
Survey Area: A **Survey Unit: 707006** **Classification: 3**

Building: 778

Survey Unit Description: Building 778 interior

Total Floor Area: 2563 sq. m **Total Area: 8914 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 707006 - MAP 6 OF 7



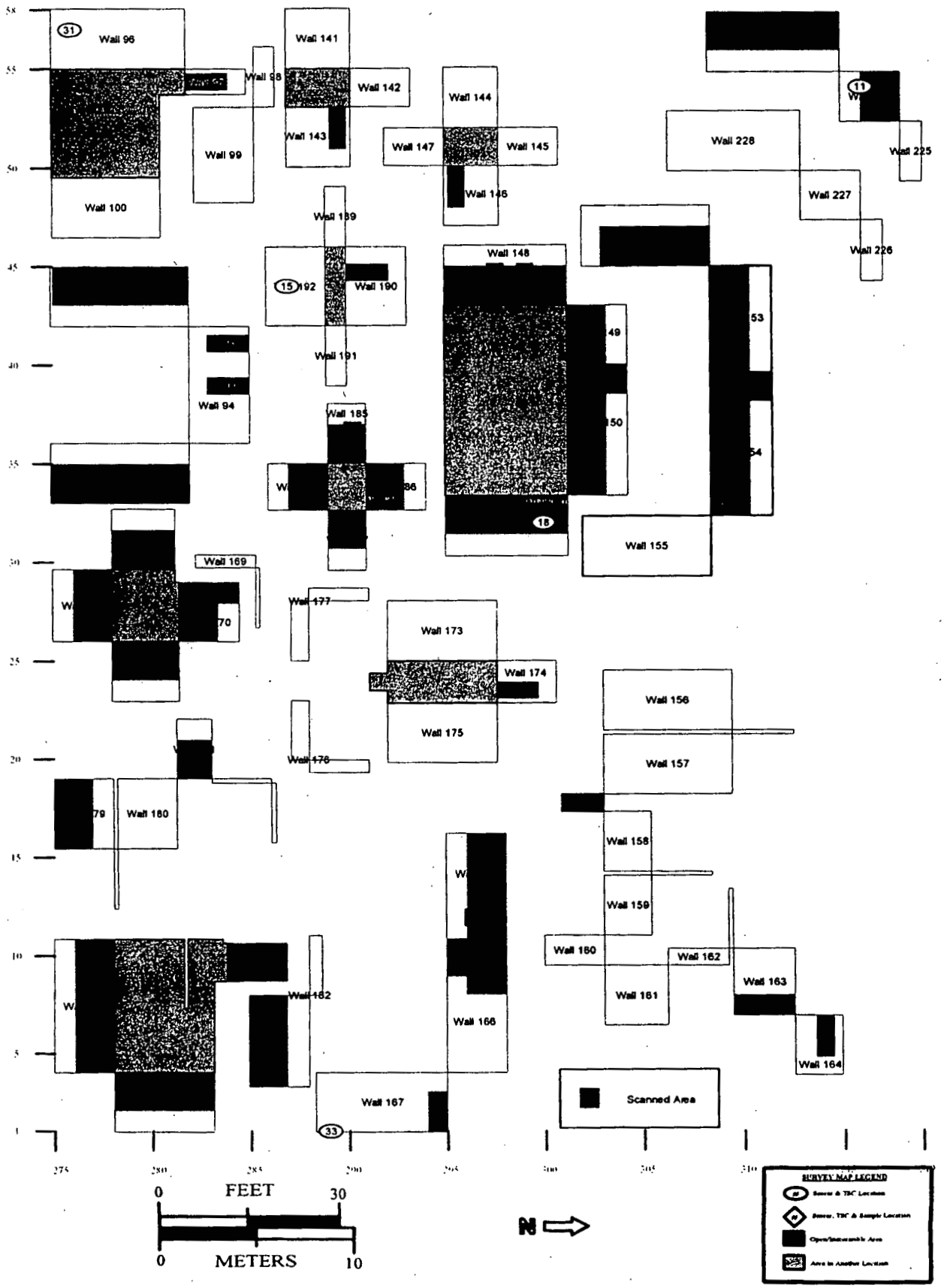
24

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A **Survey Unit: 707006** **Classification: 3**
Building: 778
Survey Unit Description: Building 778 Interior

Total Floor Area: 2563 sq. m **Total Area: 8914 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 707006 - MAP 7 OF 7



25

Survey Area: A	Survey Unit: 707006	Building: 778

scription: B778 shop, locker rooms and office areas

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 39 | Nbr Biased Measurements Required: 0 | Nbr QC Required: 4

Nbr Random Measurements Performed: 39 | Nbr Biased Measurements Performed: 0 | Nbr QC Performed: 4

Alpha

Maximum:	37.1 dpm/100cm²
Minimum:	-5.6 dpm/100cm²
Mean:	13.0 dpm/100cm²
Standard Deviation:	11.6
QC Maximum:	20.8 dpm/100cm²
QC Minimum:	2.3 dpm/100cm²
QC Mean:	10.1 dpm/100cm²
Transuranic $DCGL_W$:	100.0 dpm/100cm²
Transuranic $DCGL_{EMC}$:	300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 39 | Nbr Biased Measurements Required: 0

Nbr Random Measurements Performed: 39 | Nbr Biased Measurements Performed: 0

Alpha

Maximum:	4.5 dpm/100cm²
Minimum:	0.0 dpm/100cm²
Mean:	1.2 dpm/100cm²
Standard Deviation:	1.6
Transuranic $DCGL_W$:	20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 0 | Nbr Biased Required: 0

Nbr Random Collected: 0 | Nbr Biased Collected: 0

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

26

Survey Area: A	Survey Unit: 707006	Building: 778

scription: B778 shop, locker rooms and office areas

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	514510	11/07/04	Electra	1259	DP-6	04/11/05	0.223	NA	48.0	NA	T
2	513185	11/07/04	Electra	4174	DP-6	05/02/05	0.215	NA	48.0	NA	T
3	516375	11/07/04	Electra	3128	DP-6	04/25/05	0.219	NA	48.0	NA	T
4	513185	11/07/04	SAC-4	1473	NA	01/29/05	0.333	NA	NA	NA	R
5	513185	11/08/04	Electra	3128	DP-6	04/25/05	0.219	NA	48.0	NA	T
6	514510	11/08/04	Electra	1194	DP-6	01/14/05	0.217	NA	48.0	NA	T/Q
7	516375	11/08/04	SAC-4	1057	NA	04/05/05	0.333	NA	NA	NA	R
8	513731	11/09/04	Electra	1259	DP-6	04/11/05	0.223	NA	48.0	NA	T
9	513731	11/09/04	SAC-4	849	NA	02/04/05	0.333	NA	NA	NA	R

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

27

Survey Area: A	Survey Unit: 707006	Building: 778

scription: B778 shop, locker rooms and office areas

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
707006PRP-N001	4	4.5	N/A	
707006PRP-N002	4	0.0	N/A	
707006PRP-N003	4	3.0	N/A	
707006PRP-N004	4	0.0	N/A	
707006PRP-N005	7	0.0	N/A	
707006PRP-N006	7	0.0	N/A	
707006PRP-N007	4	1.5	N/A	
707006PRP-N008	4	4.5	N/A	
707006PRP-N009	7	1.5	N/A	
707006PRP-N010	4	0.0	N/A	
707006PRP-N011	4	0.0	N/A	
707006PRP-N012	9	3.0	N/A	
707006PRP-N013	4	1.5	N/A	
707006PRP-N014	7	1.5	N/A	
707006PRP-N015	9	1.5	N/A	
707006PRP-N016	4	0.0	N/A	
707006PRP-N017	4	4.5	N/A	
707006PRP-N018	4	0.0	N/A	
707006PRP-N019	7	0.0	N/A	
707006PRP-N020	7	0.0	N/A	
707006PRP-N021	4	0.0	N/A	
707006PRP-N022	4	3.0	N/A	
707006PRP-N023	4	0.0	N/A	
707006PRP-N024	7	1.5	N/A	
707006PRP-N025	7	1.5	N/A	
707006PRP-N026	7	0.0	N/A	
707006PRP-N027	4	0.0	N/A	
707006PRP-N028	7	3.0	N/A	
707006PRP-N029	4	0.0	N/A	

Survey Area: A	Survey Unit: 707006	Building: 778

scription: B778 shop, locker rooms and office areas

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
707006PRP-N030	7	0.0	N/A	
707006PRP-N031	4	3.0	N/A	
707006PRP-N032	7	0.0	N/A	
707006PRP-N033	4	0.0	N/A	
707006PRP-N034	7	1.5	N/A	
707006PRP-N035	4	3.0	N/A	
707006PRP-N036	4	0.0	N/A	
707006PRP-N037	4	0.0	N/A	
707006PRP-N038	4	4.5	N/A	
707006PRP-N039	4	0.0	N/A	

Comments:

Survey Area: A	Survey Unit: 707006	Building: 778

cription: B778 shop, locker rooms and office areas

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
707006PRP-N001	2	16.3	N/A	
707006PRP-N002	1	-5.6	N/A	
707006PRP-N003	2	25.6	N/A	
707006QRP-N003	6	20.8	N/A	
707006PRP-N004	3	0.6	N/A	
707006PRP-N005	5	33.9	N/A	
707006PRP-N006	5	24.8	N/A	
707006PRP-N007	2	10.2	N/A	
707006PRP-N008	2	19.5	N/A	
707006PRP-N009	5	20.2	N/A	
707006PRP-N010	2	19.5	N/A	
707006PRP-N011	1	0.2	N/A	
707006QRP-N011	6	5.6	N/A	
707006PRP-N012	8	-4.2	N/A	
707006PRP-N013	2	0.9	N/A	
707006PRP-N014	5	24.8	N/A	
707006PRP-N015	8	-2.9	N/A	
707006PRP-N016	2	13.5	N/A	
707006PRP-N017	3	28.0	N/A	
707006PRP-N018	1	9.2	N/A	
707006PRP-N019	5	37.1	N/A	
707006PRP-N020	5	29.3	N/A	
707006QRP-N020	6	11.6	N/A	
707006PRP-N021	2	13.5	N/A	
707006PRP-N022	1	9.2	N/A	
707006PRP-N023	3	3.8	N/A	
707006PRP-N024	5	28.0	N/A	

Survey Area: A	Survey Unit: 707006	Building: 778

cription: B778 shop, locker rooms and office areas

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
707006PRP-N025	5	9.7	N/A	
707006PRP-N026	5	3.8	N/A	
707006PRP-N027	3	9.7	N/A	
707006PRP-N028	5	6.5	N/A	
707006PRP-N029	2	19.5	N/A	
707006PRP-N030	5	31.2	N/A	
707006PRP-N031	1	15.0	N/A	
707006PRP-N032	5	15.6	N/A	
707006PRP-N033	1	9.2	N/A	
707006PRP-N034	5	18.8	N/A	
707006PRP-N035	3	9.7	N/A	
707006PRP-N036	2	4.2	N/A	
707006PRP-N037	3	-5.4	N/A	
707006PRP-N038	1	6.1	N/A	
707006QRP-N038	6	2.3	N/A	
707006PRP-N039	3	-2.6	N/A	

Comments: >50% of the floors, >25% of the lower wall and >10% of upper walls and ceiling surfaces were scanned. All values <300 dpm/100 cm2 after remediation, as applicable.

Attachment B-2

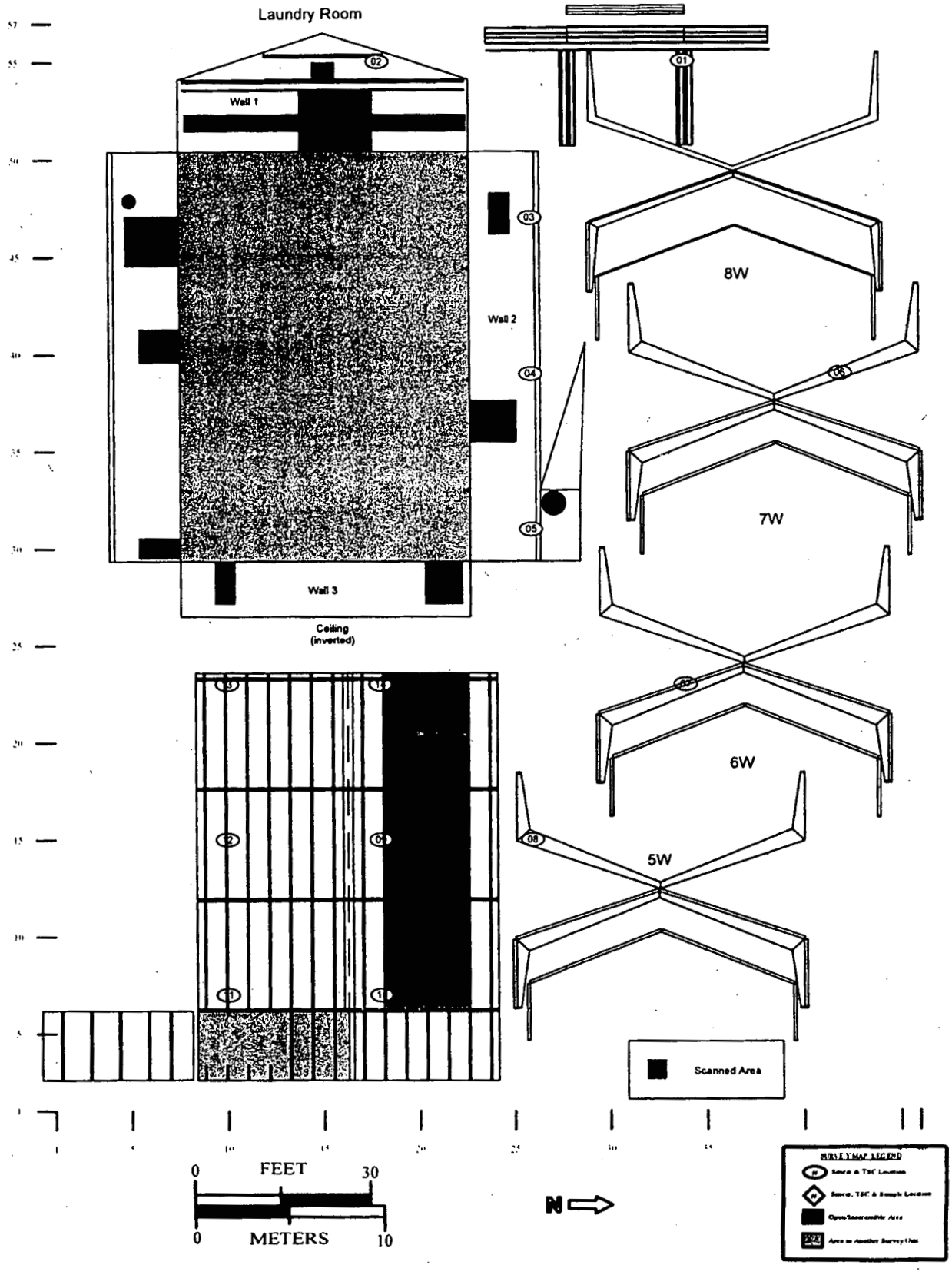
Survey Unit 707007 Survey Data and Maps

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A **Survey Unit: 707007** **Classification: 2**
Building: 778
Survey Unit Description: Laundry area walls and ceilings

Total Floor Area: 0 sq. m **Total Area: 1144 sq. m** **Random Start Grid Size: 8 x 8 sq. m**

SURVEY UNIT 707007 - MAP 1 OF 3



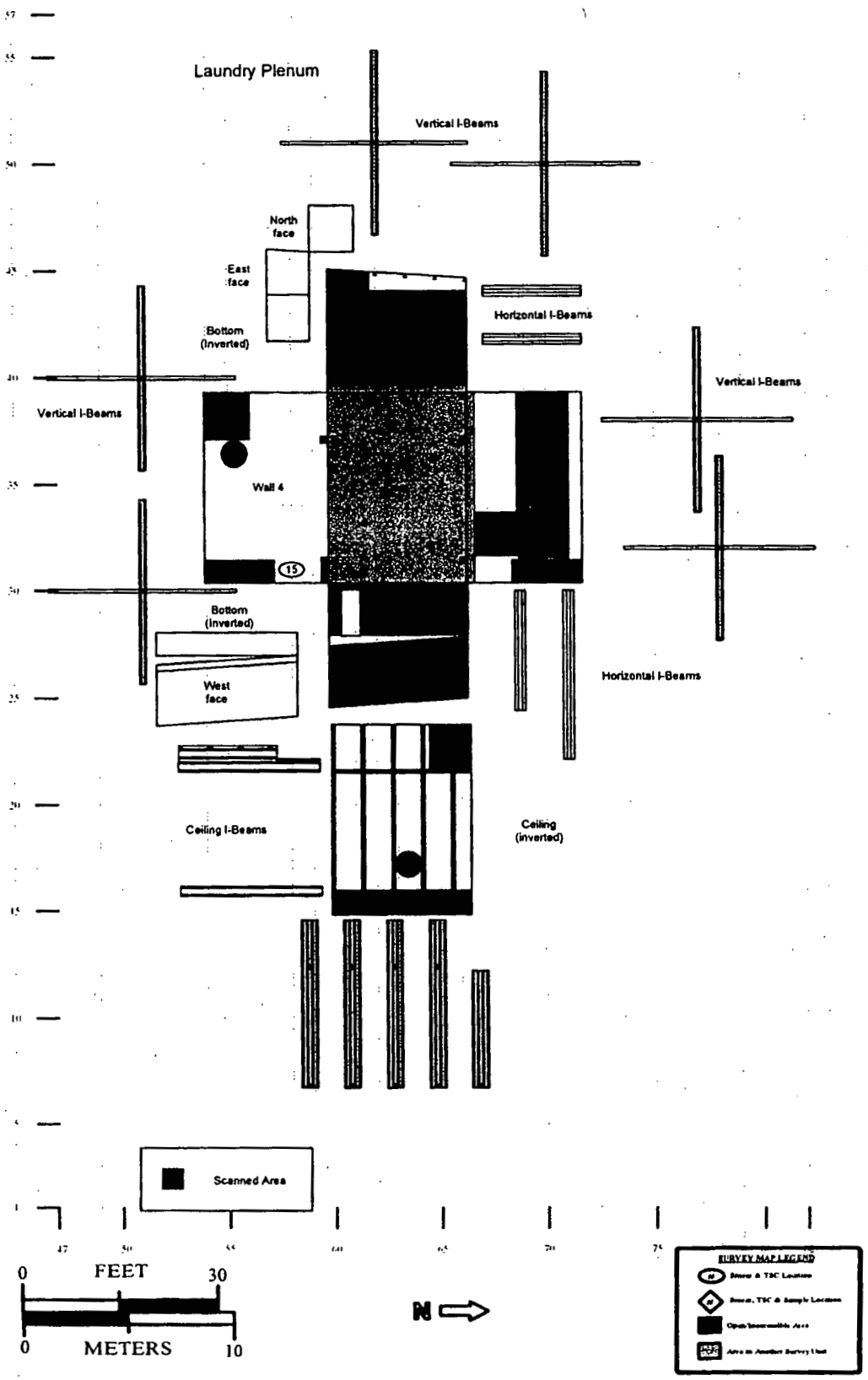
33

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A **Survey Unit: 707007** **Classification: 2**
Building: 778
Survey Unit Description: Laundry Room Walls and Ceiling (Room 104A)

Total Floor Area: N/A **Total Area: 1144 sq. m** **Random Start Grid Size: 8 x 8 sq. m**

SURVEY UNIT 70707 - MAP 2 OF 3



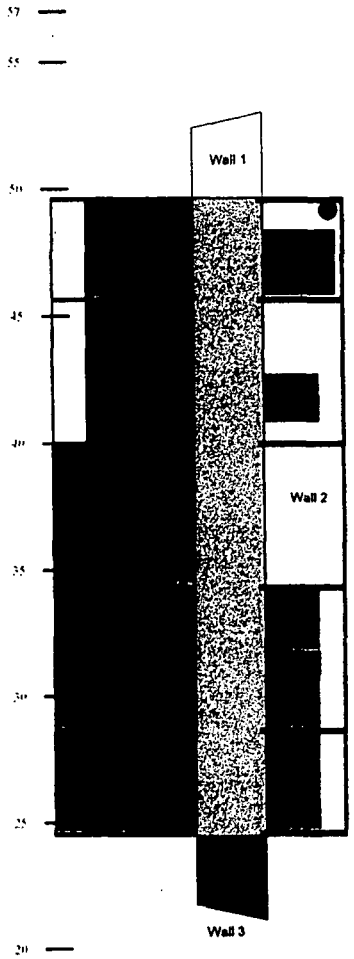
34

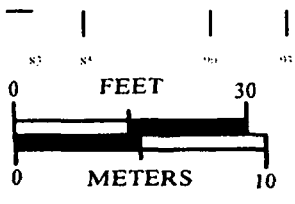
RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

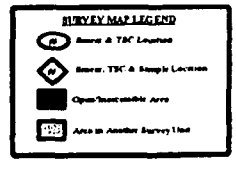
Survey Area: A **Survey Unit: 707007** **Classification: 2**
Building: 778
Survey Unit Description: Laundry area walls and ceiling

Total Floor Area: 0 sq. m **Total Area: 1144 sq. m** **Random Start Grid Size: 8 x 8 sq. m**

SURVEY UNIT 707007 - MAP 3 OF 3







Survey Area: A	Survey Unit: 707007	Building: 778
Description: B778 Laundry Room - 100 and Plenum area-Walls and Ceiling only		

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0 | Nbr QC Required: 2

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 0 | Nbr QC Performed: 2

Alpha

Maximum:	41.9 dpm/100cm²
Minimum:	0.8 dpm/100cm²
Mean:	13.9 dpm/100cm²
Standard Deviation:	12.3
QC Maximum:	12.4 dpm/100cm²
QC Minimum:	11.0 dpm/100cm²
QC Mean:	11.7 dpm/100cm²
Transuranic DCGLw:	100.0 dpm/100cm²
Transuranic DCGLemc:	300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 0

Alpha

Maximum:	1.5 dpm/100cm²
Minimum:	-1.5 dpm/100cm²
Mean:	-1.1 dpm/100cm²
Standard Deviation:	0.9
Transuranic DCGLw:	20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 0 | Nbr Biased Required: 0

Nbr Random Collected: 0 | Nbr Biased Collected: 0

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

Survey Area: A	Survey Unit: 707007	Building: 778

scription: B778 Laundry Room - 100 and Plenum area-Walls and Ceiling only

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	508194	11/10/04	Electra	4175	DP-6	04/06/05	0.219	NA	48.0	NA	T
2	510198	11/10/04	Electra	4174	DP-6	05/02/05	0.215	NA	48.0	NA	T/Q
3	508194	11/10/04	SAC-4	799	NA	12/03/04	0.333	NA	10.0	NA	R
4	512999	11/11/04	Electra	2383	DP-6	12/30/04	0.220	NA	48.0	NA	T

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

37

Survey Area: A	Survey Unit: 707007	Building: 778

Description: B778 Laundry Room - 100 and Plenum area-Walls and Ceiling only

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
707007PRP-N001	3	-1.5	N/A	
707007PRP-N002	3	-1.5	N/A	
707007PRP-N003	3	-1.5	N/A	
707007PRP-N004	3	-1.5	N/A	
707007PRP-N005	3	-1.5	N/A	
707007PRP-N006	3	1.5	N/A	
707007PRP-N007	3	-1.5	N/A	
707007PRP-N008	3	-1.5	N/A	
707007PRP-N009	3	0.0	N/A	
707007PRP-N010	3	-1.5	N/A	
707007PRP-N011	3	-1.5	N/A	
707007PRP-N012	3	0.0	N/A	
707007PRP-N013	3	-1.5	N/A	
707007PRP-N014	3	-1.5	N/A	
707007PRP-N015	3	-1.5	N/A	

Comments:

Survey Area: A	Survey Unit: 707007	Building: 778

Description: B778 Laundry Room - 100 and Plenum area-Walls and Ceiling only

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
707007PRP-N001	1	25.4	N/A	
707007PRP-N002	1	25.4	N/A	
707007PRP-N003	1	8.5	N/A	
707007QRP-N003	2	11.0	N/A	
707007PRP-N004	1	4.0	N/A	
707007PRP-N005	1	7.2	N/A	
707007PRP-N006	1	25.4	N/A	
707007PRP-N007	1	0.8	N/A	
707007QRP-N007	2	12.4	N/A	
707007PRP-N008	1	41.9	N/A	
707007PRP-N009	1	4.0	N/A	
707007PRP-N010	1	0.8	N/A	
707007PRP-N011	1	0.8	N/A	
707007PRP-N012	1	16.3	N/A	
707007PRP-N013	1	13.1	N/A	
707007PRP-N014	1	9.9	N/A	
707007PRP-N015	1	25.4	N/A	

Comments: >25% of the lower wall and >10% of upper walls and ceiling surfaces were scanned. All values <300 dpm/100 cm2 after remediation, as applicable.

Attachment B-3

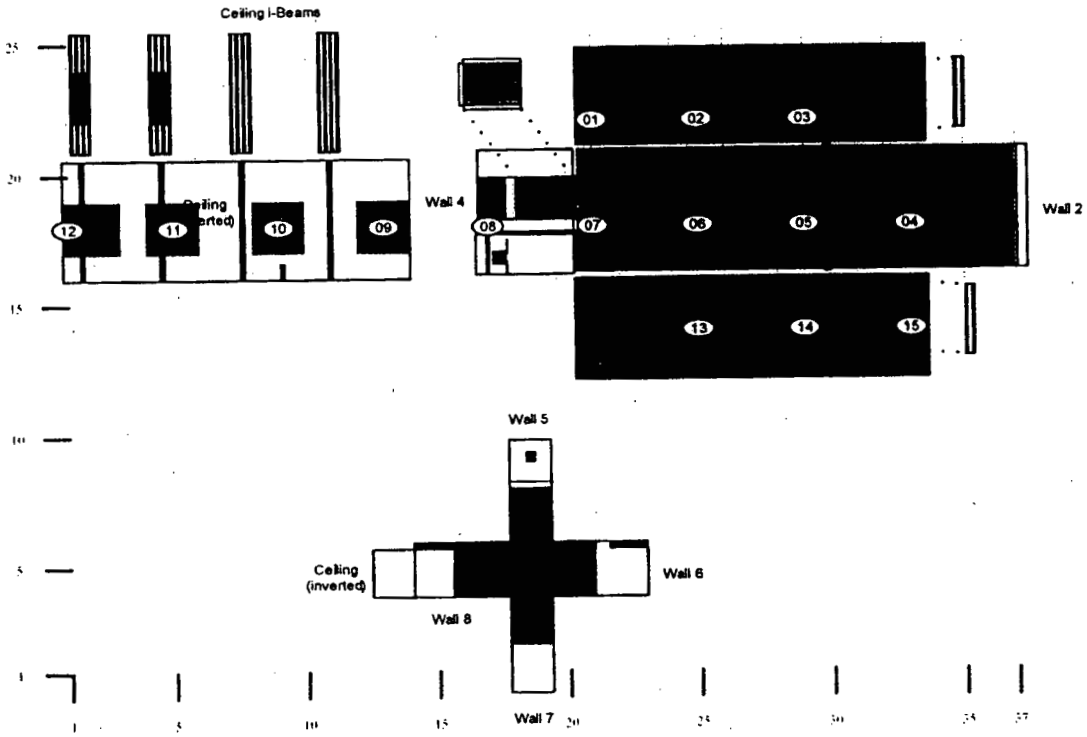
Survey Unit 707301 Survey Data and Maps

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: C **Survey Unit: 707301** **Classification: 2**
Building: 707
Survey Unit Description: First floor- 707/778 Corridor

Total Floor Area: 65 sq. m **Total Area: 277 sq. m** **Random Start Grid Size: 4 x 4 sq. m**

SURVEY UNIT 707301 - MAP 1 OF 1



Scanned Area

41

0 FEET 30
0 METERS 10

N

SURVEY MAP LEGEND

Survey Area: A	Survey Unit: 707301	Building: 778

scription: 707/778 Corridor

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0 | Nbr QC Required: 2

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 0 | Nbr QC Performed: 2

Alpha

Maximum:	24.2 dpm/100cm²
Minimum:	-12.9 dpm/100cm²
Mean:	1.9 dpm/100cm²
Standard Deviation:	11.4
QC Maximum:	0.0 dpm/100cm²
QC Minimum:	-31.7 dpm/100cm²
QC Mean:	-15.8 dpm/100cm²
Transuranic DCGLw:	100.0 dpm/100cm²
Transuranic DCGLemc:	300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 0

Alpha

Maximum:	3.6 dpm/100cm²
Minimum:	-0.9 dpm/100cm²
Mean:	0.3 dpm/100cm²
Standard Deviation:	1.3
Transuranic DCGLw:	20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 0 | Nbr Biased Required: 0

Nbr Random Collected: 0 | Nbr Biased Collected: 0

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

Survey Area: A	Survey Unit: 707301	Building: 778

scription: 707/778 Corridor

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	600323	10/09/04	Electra	3985	DP-6	02/20/05	0.230	NA	48.0	NA	T/Q
2	600799	10/09/04	Electra	3134	DP-6	11/03/04	0.219	NA	48.0	NA	T
3	600323	10/09/04	SAC-4	760	NA	02/28/05	0.330	NA	10.0	NA	R
4	600799	10/09/04	SAC-4	849	NA	02/04/05	0.330	NA	10.0	NA	R

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

Survey Area: A	Survey Unit: 707301	Building: 778

Description: 707/778 Corridor

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
707301PRP-N001	3	1.5	N/A	
707301PRP-N002	3	1.5	N/A	
707301PRP-N003	3	0.0	N/A	
707301PRP-N004	3	0.0	N/A	
707301PRP-N005	3	0.0	N/A	
707301PRP-N006	3	0.0	N/A	
707301PRP-N007	3	0.0	N/A	
707301PRP-N008	4	0.6	N/A	
707301PRP-N009	4	-0.9	N/A	
707301PRP-N010	4	3.6	N/A	
707301PRP-N011	4	2.1	N/A	
707301PRP-N012	4	-0.9	N/A	
707301PRP-N013	4	-0.9	N/A	
707301PRP-N014	4	-0.9	N/A	
707301PRP-N015	4	-0.9	N/A	

Comments:

Survey Area: A	Survey Unit: 707301	Building: 778
cription: 707/778 Corridor		

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
707301PRP-N001	1	6.8	N/A	
707301PRP-N002	1	3.7	N/A	
707301PRP-N003	1	3.7	N/A	
707301PRP-N004	1	21.1	N/A	
707301PRP-N005	1	24.2	N/A	
707301PRP-N006	1	1.1	N/A	
707301PRP-N007	1	3.7	N/A	
707301PRP-N008	2	2.6	N/A	
707301PRP-N009	2	-9.7	N/A	
707301PRP-N010	2	-12.9	N/A	
707301PRP-N011	2	-6.5	N/A	
707301PRP-N012	2	14.5	N/A	
707301QRP-N013	1	-31.7	N/A	
707301PRP-N013	2	-12.9	N/A	
707301PRP-N014	2	-6.5	N/A	
707301QRP-N015	1	0.0	N/A	
707301PRP-N015	2	-3.8	N/A	

Comments: 100% of the floor, >25% of the lower wall, and >10% of upper walls and ceiling surfaces were scanned. All values <300 dpm/100 cm2.

Attachment B-4

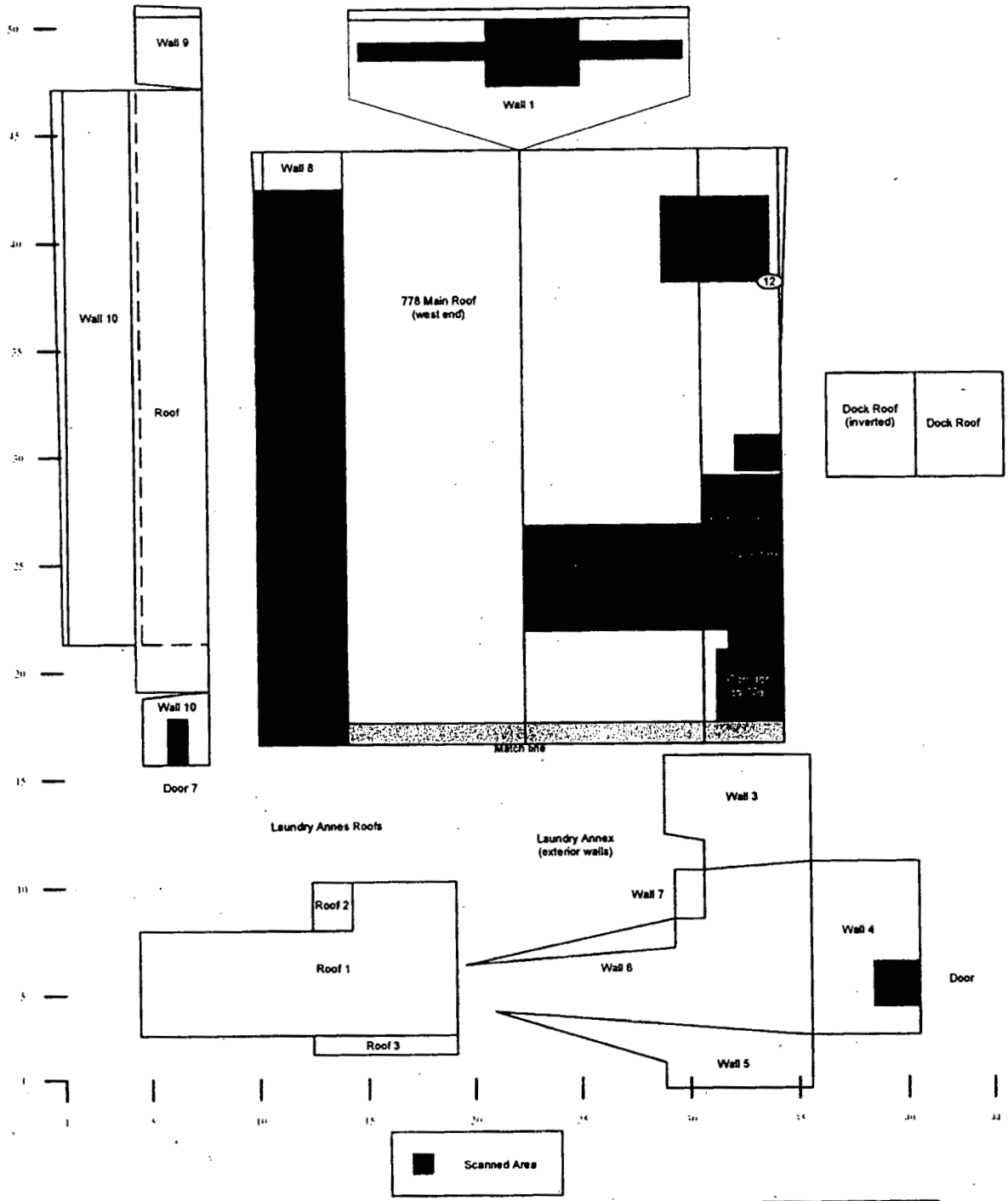
Survey Unit 707304 Survey Data and Maps

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A Survey Unit: 707304 Classification: 3
Building: 778
Survey Unit Description: Building Exterior

Total Floor Area: N/A Total Area: 4756 sq. m Random Start Grid Size: N/A

SURVEY UNIT 707304 - MAP 1 OF 6



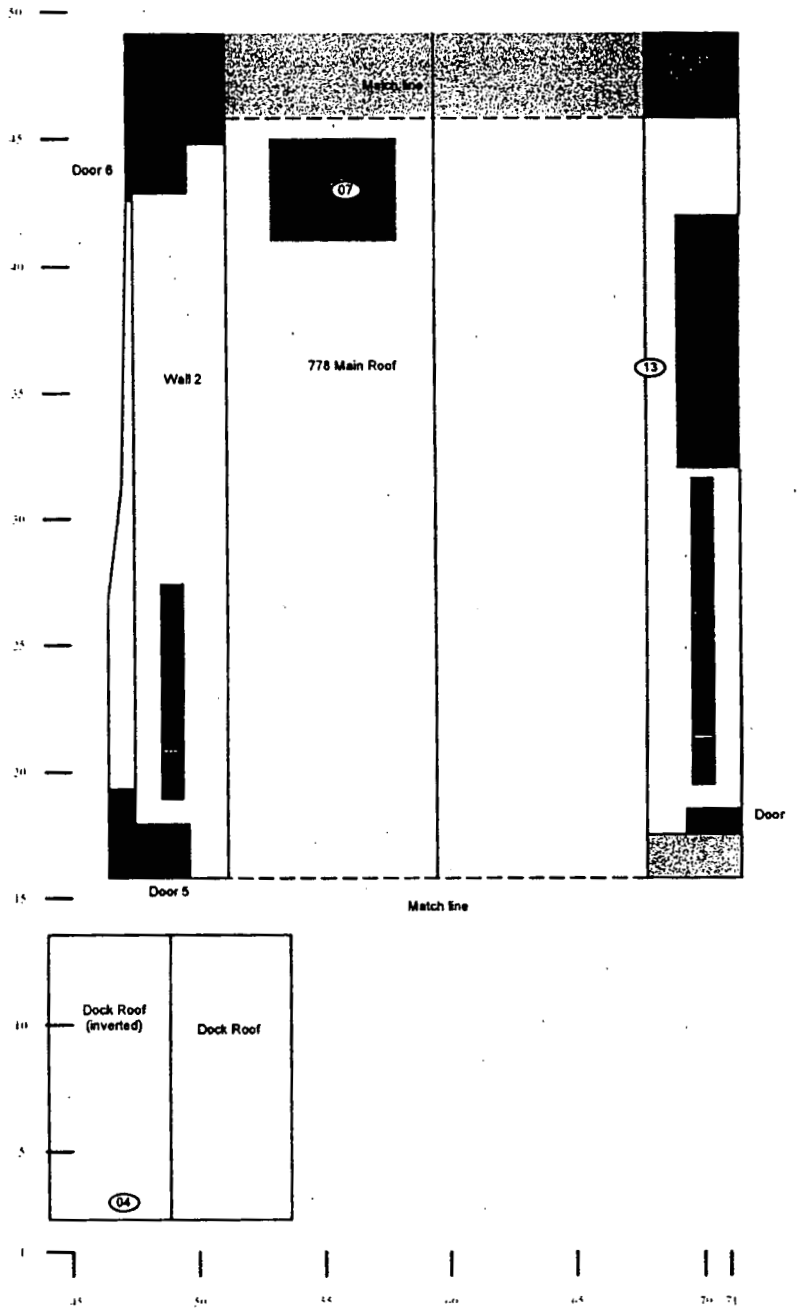
47

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A **Survey Unit: 707304** **Classification: 3**
Building: 778
Survey Unit Description: Exterior

Total Floor Area: N/A **Total Area: 4756 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 707304 - MAP 2 OF 6



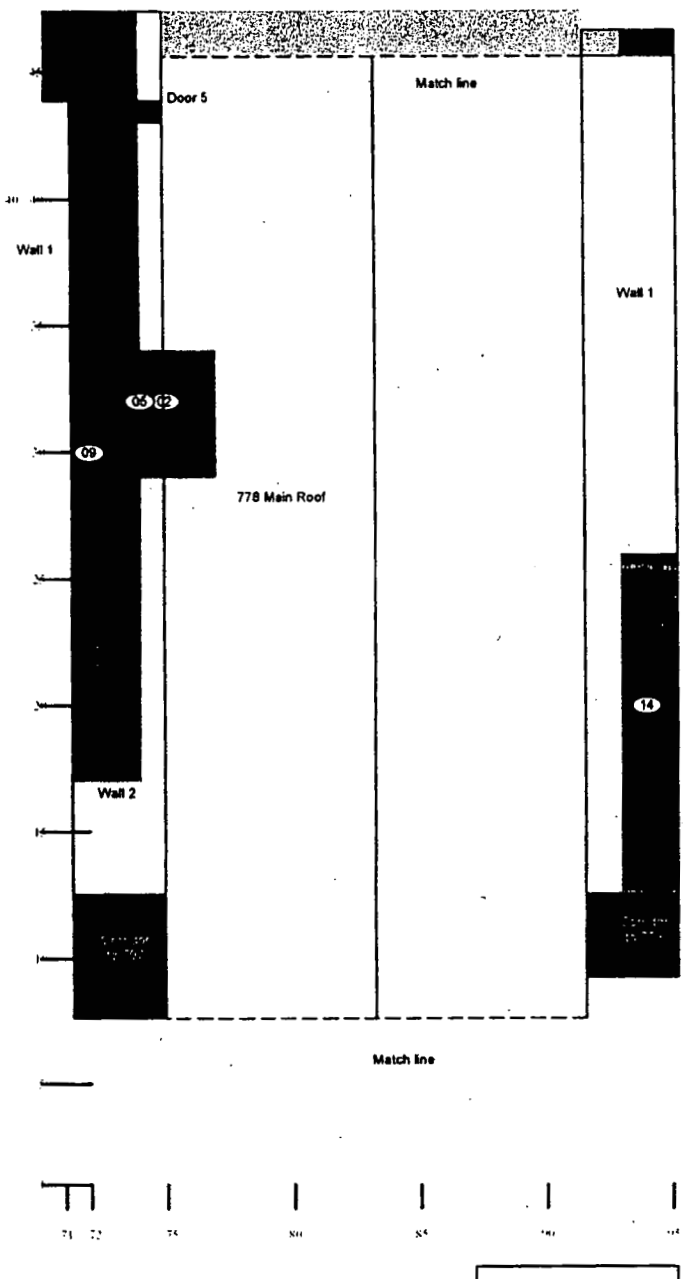
48

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A **Survey Unit: 707304** **Classification: 3**
Building: 778
Survey Unit Description: Building Exterior

Total Floor Area: N/A **Total Area: 4756 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 707304 - MAP 3 OF 6



Scanned Area

0 FEET 30

0 METERS 10

N

SURVEY MAP LEGEND

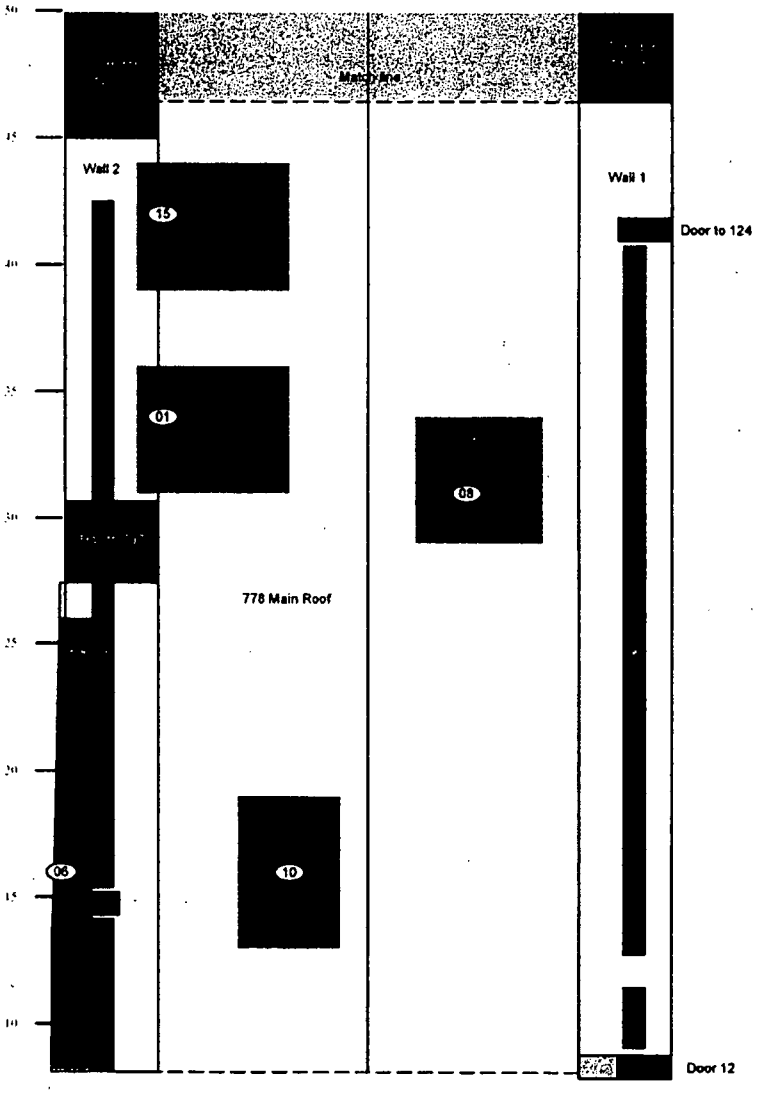
49

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A **Survey Unit: 707304** **Classification: 3**
Building: 778
Survey Unit Description: Exterior

Total Floor Area: N/A **Total Area: 4756 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 707304 - MAP 4 OF 6



Scanned Area

0 FEET 30
0 METERS 10

N

SURVEY MAP LEGEND

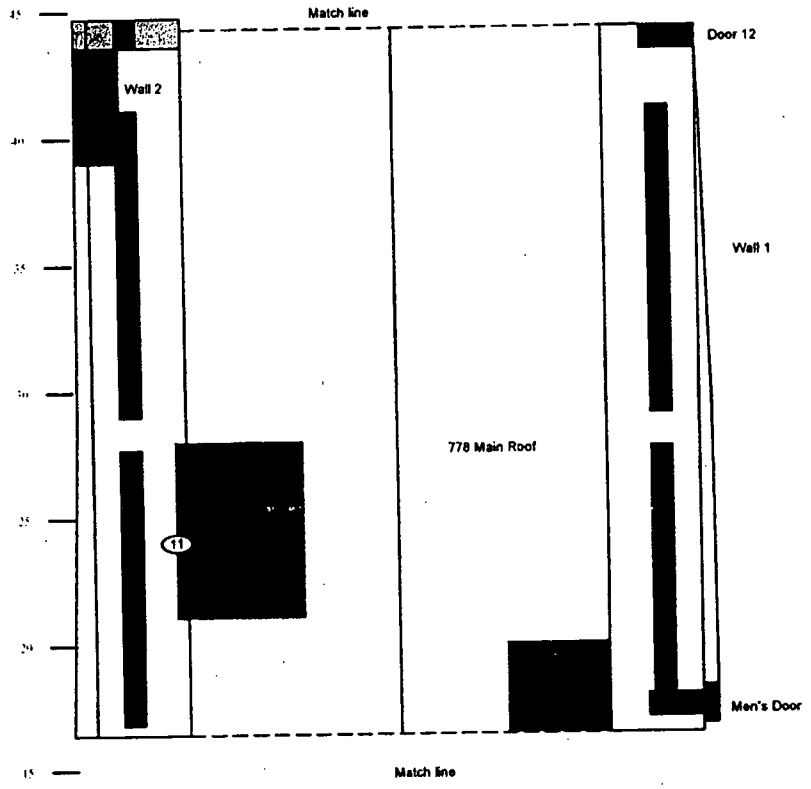
50

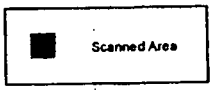
RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

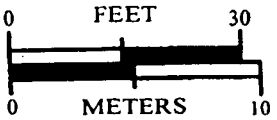
Survey Area: A **Survey Unit: 707304** **Classification: 3**
Building: 778
Survey Unit Description: Exterior

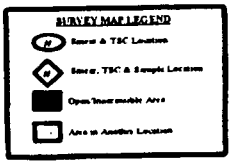
Total Floor Area: N/A **Total Area: 4756 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 707304 - MAP 5 OF 6









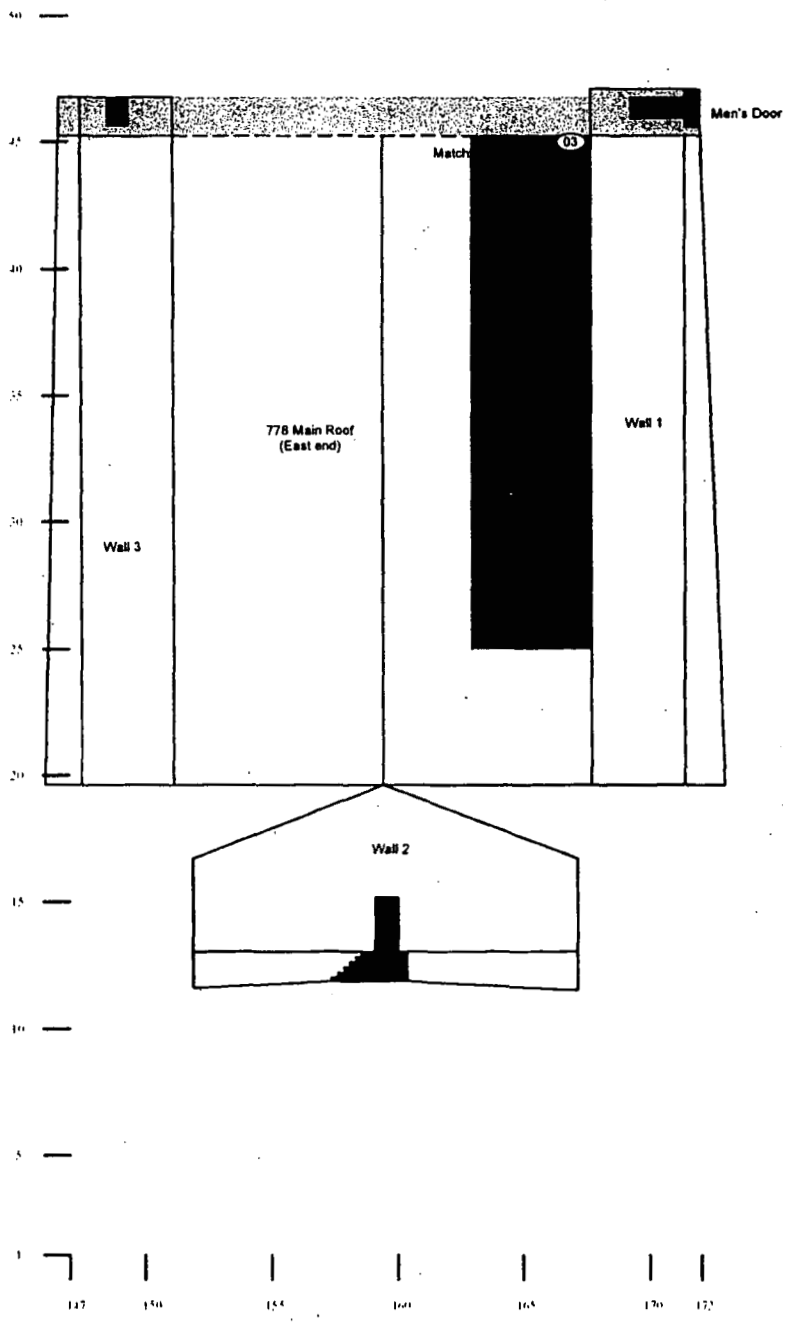
51

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: A **Survey Unit: 707304** **Classification: 3**
Building: 778
Survey Unit Description: Exterior

Total Floor Area: N/A **Total Area: 4756 sq. m** **Random Start Grid Size: N/A**

SURVEY UNIT 707304 - MAP 6 OF 6



52

Survey Area: A	Survey Unit: 707304	Building: 778

scription: The exterior of B778

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0 | Nbr QC Required: 2

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 0 | Nbr QC Performed: 2

Alpha

Maximum:	65.2 dpm/100cm²
Minimum:	5.8 dpm/100cm²
Mean:	31.9 dpm/100cm²
Standard Deviation:	22.3
QC Maximum:	30.4 dpm/100cm²
QC Minimum:	24.5 dpm/100cm²
QC Mean:	27.4 dpm/100cm²
Transuranic DCGL$_W$:	100.0 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 0

Alpha

Maximum:	4.2 dpm/100cm²
Minimum:	-0.3 dpm/100cm²
Mean:	2.0 dpm/100cm²
Standard Deviation:	1.5
Transuranic DCGL$_W$:	20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 0 | Nbr Biased Required: 0

Nbr Random Collected: 0 | Nbr Biased Collected: 0

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

53

Survey Area: A	Survey Unit: 707304	Building: 778

scription: The exterior of B778

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	516375	11/04/04	Electra	4174	DP-6	05/02/05	0.215	NA	48.0	NA	T
2	513185	11/04/04	Electra	1100	DP-6	02/28/05	0.219	NA	48.0	NA	T/Q
3	514510	11/04/04	Electra	3972	DP-6	02/04/05	0.224	NA	48.0	NA	T
4	514510	11/04/04	SAC-4	849	NA	02/04/05	0.333	NA	NA	NA	R
5	511798	11/06/04	SAC-4	1265	NA	02/28/05	0.333	NA	NA	NA	R
6	512999	11/06/04	Electra	1269	DP-6	03/02/05	0.222	NA	48.0	NA	T
7	511510	11/09/04	Electra	4174	DP-6	05/02/05	0.215	NA	48.0	NA	T
8	509284	11/09/04	SAC-4	849	NA	02/04/05	0.333	NA	NA	NA	R

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

Survey Area: A	Survey Unit: 707304	Building: 778

cription: The exterior of B778

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
707304PRP-N001	8	3.0	N/A	
707304PRP-N002	8	3.0	N/A	
707304PRP-N003	5	3.3	N/A	
707304PRP-N004	4	1.2	N/A	
707304PRP-N005	4	-0.3	N/A	
707304PRP-N006	4	4.2	N/A	
707304PRP-N007	8	1.5	N/A	
707304PRP-N008	8	3.0	N/A	
707304PRP-N009	4	1.2	N/A	
707304PRP-N010	5	0.3	N/A	
707304PRP-N011	8	3.0	N/A	
707304PRP-N012	8	1.5	N/A	
707304PRP-N013	4	4.2	N/A	
707304PRP-N014	4	-0.3	N/A	
707304PRP-N015	8	1.5	N/A	

Comments:

Survey Area: A	Survey Unit: 707304	Building: 778

cription: The exterior of B778

Random/QC Total Surface Activity Data Sheet

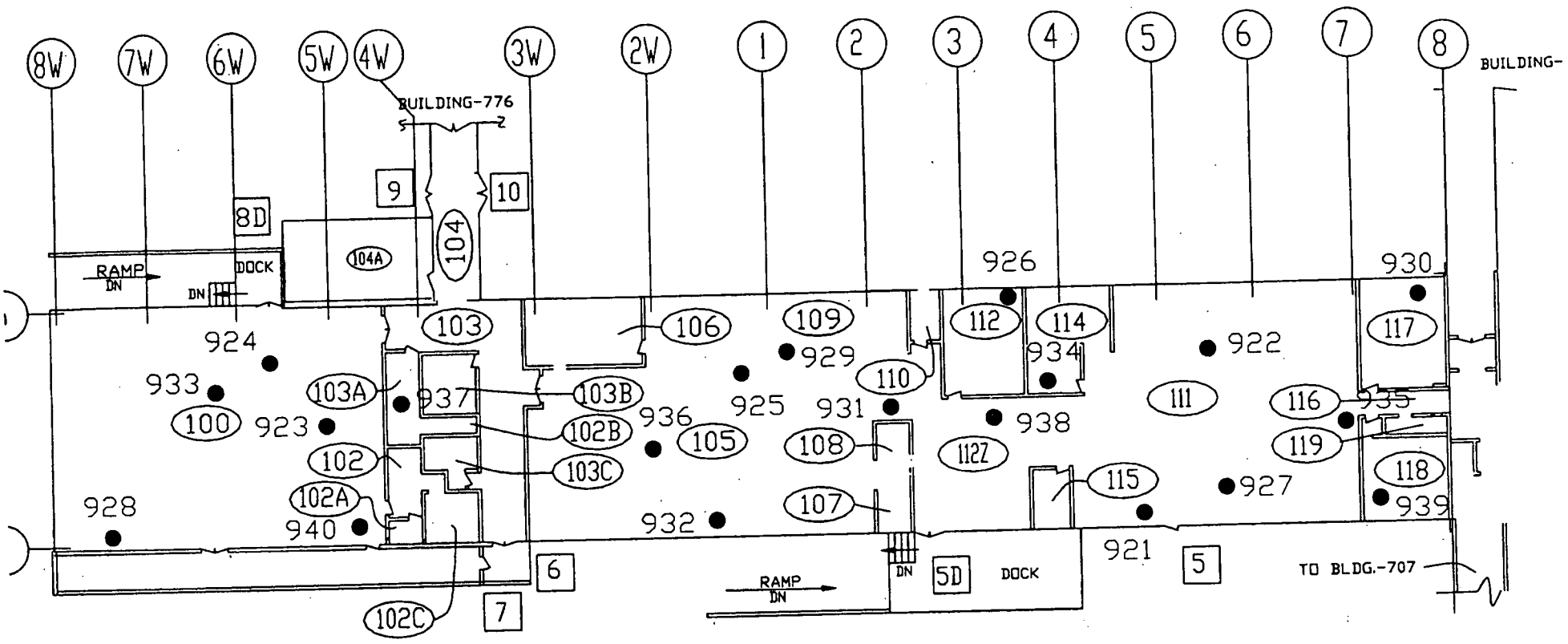
Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
707304PRP-N001	7	47.4	N/A	
707304PRP-N002	7	10.2	N/A	
707304PRP-N003	6	60.1	N/A	
707304PRP-N004	3	5.8	N/A	
707304PRP-N005	3	26.8	N/A	
707304QRP-N006	2	24.5	N/A	
707304PRP-N006	3	65.2	N/A	
707304PRP-N007	7	33.4	N/A	
707304PRP-N008	7	31.6	N/A	
707304QRP-N009	2	30.4	N/A	
707304PRP-N009	3	41.5	N/A	
707304PRP-N010	6	60.1	N/A	
707304PRP-N011	7	6.9	N/A	
707304PRP-N012	7	6.9	N/A	
707304PRP-N013	3	7.1	N/A	
707304PRP-N014	3	17.8	N/A	
707304PRP-N015	7	58.1	N/A	

Comments: 10% of the exterior walls and roof surfaces were scanned. All values <300 dpm/100 cm2.

Attachment C

Chemical Data Summaries and Sample Maps

58



BLDG. 778 FLOOR PLAN (WEST END)

Be Sample Locations

778-09192004-31-xxx (floor)

778-09192004-31-xxx (elevated)

59

Industrial Hygie ` Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-923	SURVEY	100	FINAL SURVEY W-30, S-10, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-924	SURVEY	100	FINAL SURVEY W-26, S-24, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-928	SURVEY	100	FINAL SURVEY W-8, S-2, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-933	SURVEY	100	FINAL SURVEY W-18, S-18, BRACKET	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-940	SURVEY	100	FINAL SURVEY W-33, S-3, BRACKET	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

Building Subtotal: 5
Hygienist Subtotal: 5
Company Subtotal: 5
Grand Total 5

Pgs: 59-67, 69-81
DOES NOT CONTAIN
OFFICIAL USE ONLY INFORMATION
Name/Org [signature] / DRC Date 11/5/08
Directed by: J.A. Nesheim DOE M471.3-1

[redacted]

60

Industrial Hygie Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-937	SURVEY	103A	FINAL SURVEY W-34, S-29, BRACKET	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

Building Subtotal: 1
Hygienist Subtotal: 1
Company Subtotal: 1
Grand Total 1

[redacted]

6

IHISR_SAMPLE_RESULTS_REPORT
Date: 11/16/2004

Industrial Hygiene Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-925	SURVEY	105	FINAL SURVEY W-67, S-16, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-929	SURVEY	105	FINAL SURVEY W-70, S-24, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-931	SURVEY	105	FINAL SURVEY W-83, S-10, PIPE	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-932	SURVEY	105	FINAL SURVEY W-65, S-2, CONDUIT	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-936	SURVEY	105	FINAL SURVEY W-63, S-13, BRACKET	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

Building Subtotal: 5
Hygienist Subtotal: 5
Company Subtotal: 5
Grand Total 5

[redacted]

62

IHISR_SAMPL_ _ESULTS_REPORT
Date: 11/16/2004

Industrial Hygie ' Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-926	SURVEY	112	FINAL SURVEY W-95, S-28, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
Building Subtotal: 1							
Hygienist Subtotal: 1							
Company Subtotal: 1							
Grand Total 1							

[redacted]

63

IHISR_SAMPLE_..ESULTS_REPORT
Date: 11/16/2004

Industrial Hygie Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-938	SURVEY	112Z	FINAL SURVEY W-92, S-25, PIPE	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
Building Subtotal: 1							
Hygienist Subtotal: 1							
Company Subtotal: 1							
Grand Total 1							

[redacted]

6F

IHISR_SAMPLE_ _ESULTS_REPORT
Date: 11/16/2004

Industrial Hygie Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-934	SURVEY	114	FINAL SURVEY W-99, S-20, BEAM	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
	Building Subtotal: 1						
	Hygienist Subtotal: 1						
	Company Subtotal: 1						
	Grand Total 1						

[redacted]

95

IHISR_SAMPLE_ ESULTS_REPORT
Date: 11/16/2004

Industrial Hygie Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-921	SURVEY	111	FINAL SURVEY W-109, S-1, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-922	SURVEY	111	FINAL SURVEY W-115, S-21, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-927	SURVEY	111	FINAL SURVEY W-117, S-9, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-935	SURVEY	111	FINAL SURVEY W-128, S-14, PIPE	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

Building Subtotal: 4
Hygienist Subtotal: 4
Company Subtotal: 4
Grand Total 4

[redacted]

IHISR_SAMPLE_RESULTS_REPORT
Date: 11/16/2004

Industrial Hygie[illegible] Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-930	SURVEY	117	FINAL SURVEY W-139, S-27, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
	Building Subtotal: 1						
	Hygienist Subtotal: 1						
	Company Subtotal: 1						
	Grand Total 1						

[redacted]

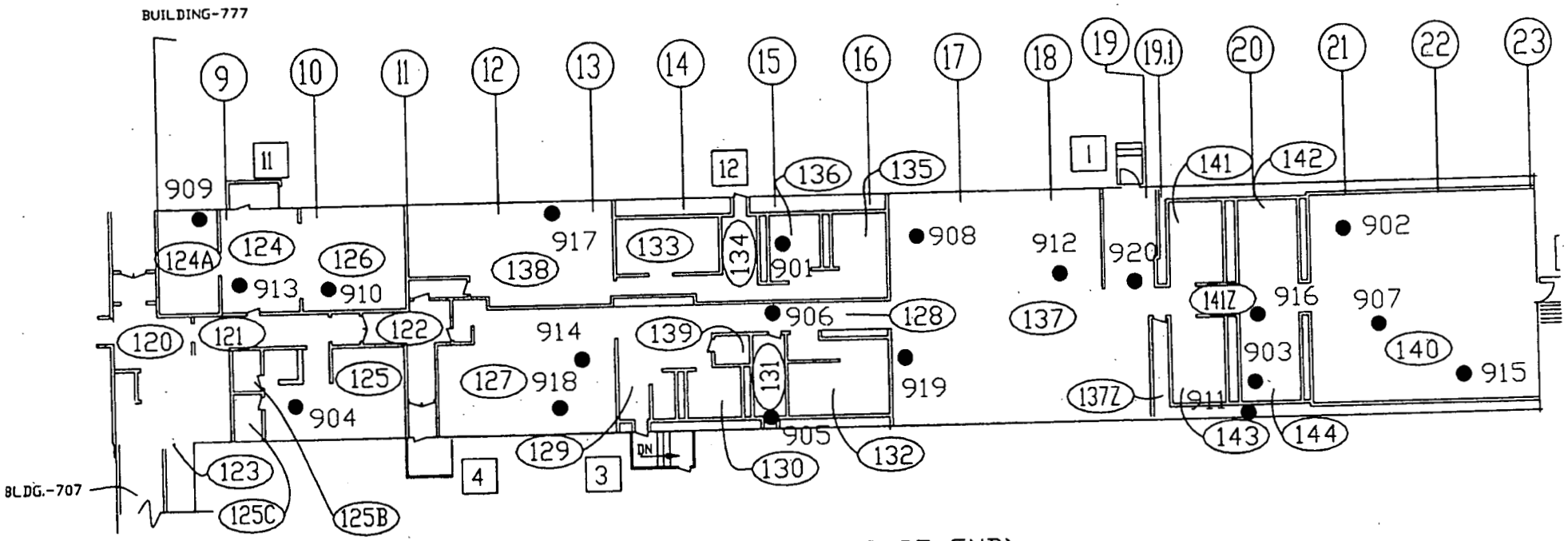
IHISR_SAMPLE_...SULTS_REPORT
Date: 11/16/2004

Industrial Hygie' Information System
Sample Results Report
SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-939	SURVEY	118	FINAL SURVEY W-134, S-5, CONDUIT	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

Building Subtotal: 1
Hygienist Subtotal: 1
Company Subtotal: 1
Grand Total 1

[redacted]



BLDG. 778 FLOOR PLAN (EAST END)

Be Sample Locations

778-09192004-31-xxx (floor)

778-09192004-31-xxx (elevated)

95

IHISR_SAMPLE_ SULTS_REPORT
Date: 11/16/2004

Industrial Hygier Information System
Sample esults Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-901	SURVEY	136	FINAL SURVEY W-61, S-20, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
	Building Subtotal: 1						
	Hygienist Subtotal: 1						
	Company Subtotal: 1						
	Grand Total 1						

[redacted]

Industrial Hygier Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-902	SURVEY	140	FINAL SURVEY W-145, S-25, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-907	SURVEY	140	FINAL SURVEY W-142, S-12, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-915	SURVEY	140	FINAL SURVEY W-147, S-3, PIPE	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

Building Subtotal: 3
Hygienist Subtotal: 3
Company Subtotal: 3
Grand Total 3

[redacted]

IHISR_SAMPLE_. .SULTS_REPORT
Date: 11/16/2004

Industrial Hygier Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-903	SURVEY	144	FINAL SURVEY W-129, S-7, FLOOR	WIPE	04C0729	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-911	SURVEY	144	FINAL SURVEY W-128, S-1, CONDUIT	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-916	SURVEY	144	FINAL SURVEY W-127, S-15, BRACKET	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

Building Subtotal: 3
Hygienist Subtotal: 3
Company Subtotal: 3
Grand Total 3

[redacted]

24

IHISR_SAMPLE_ .SULTS_REPORT
Date: 11/16/2004

Industrial Hygie Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-908	SURVEY	137	FINAL SURVEY W-94, S-25, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-912	SURVEY	137	FINAL SURVEY W-110, S-18, PIPE	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-919	SURVEY	137	FINAL SURVEY W-93, S-12, PIPE	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-920	SURVEY	137	FINAL SURVEY W-122, S-21, PIPE	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

Building Subtotal: 4
Hygienist Subtotal: 4
Company Subtotal: 4
Grand Total 4

[redacted]

37

IHISR_SAMPLE_ SULTS_REPORT
Date: 11/16/2004

Industrial Hygier Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-906	SURVEY	128	FINAL SURVEY W-78, S-3, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
	Building Subtotal: 1						
	Hygienist Subtotal: 1						
	Company Subtotal: 1						
	Grand Total 1						

[redacted]

IHISR_SAMPLE_ SULTS_REPORT
Date: 11/16/2004

Industrial Hygier Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-905	SURVEY	131	FINAL SURVEY W-77, S-16, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

Building Subtotal: 1
Hygienist Subtotal: 1
Company Subtotal: 1
Grand Total 1

[redacted]

IHISR_SAMPLE_ SULTS_REPORT
Date: 11/16/2004

Industrial Hygier Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-901	SURVEY	136	FINAL SURVEY W-61, S-20, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
	Building Subtotal: 1						
	Hygienist Subtotal: 1						
	Company Subtotal: 1						
	Grand Total 1						

[redacted]

Industrial Hygier Information System
Sample esults Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-917	SURVEY	138	FINAL SURVEY W-54, S-30, BEAM	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

Building Subtotal: 1
Hygienist Subtotal: 1
Company Subtotal: 1
Grand Total 1

[redacted]

IHISR_SAMPLE_ ULTS_REPORT
Date: 11/16/2004

Industrial Hygier Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-914	SURVEY	127	FINAL SURVEY W-57, S-13, PIPE	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
778-09192004-31-918	SURVEY	127	FINAL SURVEY W-55, S-4, BRACKET	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

Building Subtotal: 2
Hygienist Subtotal: 2
Company Subtotal: 2
Grand Total 2

[redacted]

IHISR_SAMPLE_ SULTS_REPORT
Date: 11/16/2004

Industrial Hygier Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-904	SURVEY	125	FINAL SURVEY W-23, S-4, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
	Building Subtotal: 1						
	Hygienist Subtotal: 1						
	Company Subtotal: 1						
	Grand Total 1						

[redacted]

IHISR_SAMPLE_ SULTS_REPORT
Date: 11/16/2004

Industrial Hygier Information System
Sample esults Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-910	SURVEY	126	FINAL SURVEY W-30, S-11, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
	Building Subtotal: 1						
	Hygienist Subtotal: 1						
	Company Subtotal: 1						
	Grand Total 1						

[redacted]

IHISR_SAMPLE_ ULTS_REPORT
Date: 11/16/2004

Industrial Hygier Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-913	SURVEY	124	FINAL SURVEY W-19, S-19, BRACKET	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
	Building Subtotal: 1						
	Hygienist Subtotal: 1						
	Company Subtotal: 1						
	Grand Total 1						

[redacted]

8

IHISR_SAMPLE_ ULTS_REPORT
Date: 11/16/2004

Industrial Hygier Information System
Sample Results Report

SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
FARLER, DAVID F							
778-09192004-31-909	SURVEY	124A	FINAL SURVEY W-11, S-28, FLOOR	WIPE	04C0728	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
Building Subtotal: 1							
Hygienist Subtotal: 1							
Company Subtotal: 1							
Grand Total 1							

[redacted]

Attachment D

Data Quality Assessment

DATA QUALITY ASSESSMENT (DQA)

Verification & VALIDATION of Results

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. A Data Quality Checklist was completed as required in PRO-478-RSP-16.*04 Radiological Survey/Sample Data Quality Analysis for Final Status Survey*. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically beryllium).

DQA criteria and results are provided in a tabular format for each set of surveys or chemical analyses performed; the radiological survey assessment is provided in Table D-1, and the beryllium assessment in D-2. A data completeness summary for all results is given in Table D-3.

All relevant Quality records supporting this report are maintained in the B778 Characterization Project Files. The Regulators will submit this report to the CERCLA Administrative Record for permanent storage within 30 days of approval. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic DCGLw (100 dpm/100cm^2).

Summary

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification. All media surveyed and sampled yielded results less than their associated action levels and with acceptable uncertainties.

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. All facility contamination levels were below applicable unrestricted release levels, except as noted above. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits.

DQAs for radiological surveys and beryllium analyses are included in this report. The facility has been verified to be free of asbestos, PCBs, and RCRA/CERCLA materials through in-process characterization and final facility walkdowns, and no further sampling for these chemical constituents was required.

Table D-1 V&V of Radiological Surveys – B778

V&V CRITERIA, RADIOLOGICAL SURVEYS		K-H RSP 16.00 Series MARSSIM (NUREG-1575)		
QUALITY REQUIREMENTS				
Parameters		Measure	Frequency	COMMENTS
ACCURACY	Initial calibrations	80%<x<120%	≥1	Calibration using Alpha Group procedure and approved technicians.
	Daily source checks	80%<x<120%	≥1/day	Performed daily/within range.
	Local area background: Field	typically < 10 dpm	≥1/day	All local area backgrounds were within expected ranges
PRECISION	Field duplicate measurements for TSA	≥5% of real survey points	≥100% packages	N/A
REPRESENTATIVENESS	MARSSIM methodology	Statistical	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random measurement locations controlled/mapped to ±1m.
	Controlling Documents (Characterization Pkg; RSPs)	Qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	Units of measure	dpm/100cm^2	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual surveys Usable results vs. unusable	>95% >95%	NA	See Table C-3 for details.
SENSITIVITY	Detection limits	TSA: ≤50 dpm/100cm^2 RA: ≤10 dpm/100cm^2	all measures	MDAs ≤ ½ DCGL$_w$ per MARSSIM guidelines.

Table D-2 V&V of Beryllium Results – B778

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
BERYLLIUM	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB ⟶	Johns Manville Corp. Denver, Co.	
QUALITY REQUIREMENTS		Measure	Frequency	COMMENTS
ACCURACY	Calibrations Initial	linear calibration	≥1	No qualifications significant enough to change project decisions, i.e., classification of Type 2 facilities confirmed. All results were below associated action levels.
	Continuing	80%<%R<120%	≥1	
	LCS/MS	80%<%R<120%	≥1	
	Blanks – lab & field	<MDL	≥1	
	Interference check std (ICP)	NA	NA	
PRECISION	Laboratory Control Sample Duplicate	80%<%R<120% (RPD<20%)	≥1	
	Field duplicate	all results < RL	≥1	
REPRESENTATIVENESS	COC	Qualitative	NA	
	Hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	
COMPARABILITY	Measurement units	ug/100cm^2	NA	
COMPLETENESS	Plan vs. Actual samples Usable results vs. unusable	>95% >95%	NA	
SENSITIVITY	Detection limits	MDL of 0.10ug/100cm^2	All measures	

Table D-3 Data Completeness Summary – B778

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC)	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Beryllium	Survey Area:			No beryllium contamination found at any location, all results below the regulatory limit	OSHA ID-125G RIN 05C0728 No results above action level (0.2ug/100cm^2) or investigative level (0.1 ug/100cm^2). See attached maps for sample locations.
	Room 100	5 Random swipe samples on horizontal surfaces from floor to ceiling	5 Random swipe samples on horizontal surfaces from floor to ceiling		
	Room 103A	1 Random swipe sample on horizontal surfaces from floor to ceiling	1 Random swipe sample on horizontal surfaces from floor to ceiling		
	Room 105	5 Random swipe samples on horizontal surfaces from floor to ceiling	5 Random swipe samples on horizontal surfaces from floor to ceiling		
	Room 112Z	1 Random swipe sample on horizontal surfaces from floor to ceiling	1 Random swipe sample on horizontal surfaces from floor to ceiling		
	Room 112	1 Random swipe sample on horizontal surfaces from floor to ceiling	1 Random swipe sample on horizontal surfaces from floor to ceiling		
	Room 114	1 Random swipe sample on horizontal surfaces from floor to ceiling	1 Random swipe sample on horizontal surfaces from floor to ceiling		
	Room 111	4 Random swipe samples on horizontal surfaces from floor to ceiling	4 Random swipe samples on horizontal surfaces from floor to ceiling		
	Rooms 117, 118, 124, 124A, 125, 126, 128, 131 and 138	1 Random swipe sample each on horizontal surfaces from floor to ceiling	1 Random swipe sample each on horizontal surfaces from floor to ceiling		
	Room 136	2 Random swipe samples on horizontal surfaces from floor to ceiling	2 Random swipe samples on horizontal surfaces from floor to ceiling		
	Room 127	2 Random swipe samples on horizontal surfaces from floor to ceiling	2 Random swipe samples on horizontal surfaces from floor to ceiling		
	Room 137	4 Random swipe samples on horizontal surfaces from floor to ceiling	4 Random swipe samples on horizontal surfaces from floor to ceiling		
	Rooms 140 and 144	3 Random swipe samples each on horizontal surfaces from floor to ceiling	3 Random swipe samples each on horizontal surfaces from floor to ceiling		
Radiological	Survey Area: A Survey Unit: 707006 Floor, walls and ceiling	39 α TSA & RSA (Random) 4 QC TSA 50% scan of the floor surfaces, 25% scan of the lower wall surfaces and 5% scan of the upper wall and ceiling surfaces.	39 α TSA & RSA (Random) 4 QC TSA 84% floor scan 35% lower wall scan 16% upper wall/ceiling scan	No elevated contamination remaining at any location from DOE added nuclides; all values below PDS unrestricted release levels	Transuranic DCGLs No results above action level

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC)	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area: A Survey Unit: 707007 Walls and ceiling	15 α TSA & RSA (Random/Systematic) 2 QC TSA 25% lower wall scan 10% upper wall/ceiling scan	15 α TSA & RSA (Random/Systematic) 2 QC TSA 43% lower wall scan 18% upper wall/ceiling scan	No elevated contamination remaining at any location from DOE added nuclides; all values below PDS unrestricted release levels	Transuranic DCGLs No results above action level
Radiological	Survey Area: A Survey Unit: 707301 Floor, Lower walls Upper walls & ceiling	15 α TSA & RSA (Random/Systematic) 2 QC TSA 100% scan of all accessible floor surfaces 25% lower wall scan 10% upper wall/ceiling scan	15 α TSA & RSA (Random/Systematic) 2 QC TSA 100% scan of all accessible floor surfaces 92% lower wall scan 70% upper wall/ceiling scan	No elevated contamination remaining at any location from DOE added nuclides; all values below PDS unrestricted release levels	Transuranic DCGLs No results above action level
Radiological	Survey Area: A Survey Unit: 707304 Exterior Surfaces-Walls and Roof	15 α TSA & RSA (Random) 2 QC TSA 5% scan	15 α TSA & RSA (Random) 2 QC TSA 10% scan	No elevated contamination remaining at any location from DOE added nuclides; all values below PDS unrestricted release levels	Transuranic DCGLs No results above action level